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ABSTRACT

This report provides data on the participation of women, minorities, and persons with disabilities in science and engineering education and employment. The data and analyses can be used to track progress, inform the development of policies to increase participation in science and engineering, and evaluate the effectiveness of such policies. The report consists of an introduction, five chapters, and two appendices. The chapters concern undergraduate enrollment, undergraduate degrees, graduate enrollment, graduate degrees, and science and engineering employment. The appendices contain technical notes and statistical tables. (SAH)

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Women, Minorities, and Persons With Disabilities

in Science and Engineering: 2000

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National Science Foundation

September 2000

Women, Minorities, and Persons With Disabilities

in Science and Engineering: 2000

National Science Foundation

September 2000

FOREWORD

The National Science Foundation (NSF) is committed to increasing the participation of underrepresented groups both in the Foundation and in its programs supporting research and education in science and engineering. One of NSF's strategic goals, as outlined in the Government Performance and Results Act Strategic Plan FY 1997–2003, is to "strive for a diverse, globally oriented workforce of scientists and engineers." Underpinning this goal is a recognition that "a diverse science and engineering workforce that is representative of the American public and able to respond effectively to a global economy is vitally important to America's future."

This report, the 10th in a biennial series, provides data on the participation of women, minorities, and persons with disabilities in science and engineering education and employment. The data and analyses presented here can be used to track progress, inform the development of policies to increase participation in science and engineering, and evaluate the effectiveness of such policies.

Rita R Colwell

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Director

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ABBREVIATIONS

HBCU	Historically Black College or University
HEGIS	Higher Education General Information Survey
HSI	Hispanic-serving Institution
IPEDS	Integrated Postsecondary Education Data System
NCES	National Center for Education Statistics
NPSAS	National Postsecondary Student Aid Study
NSF	National Science Foundation
R&D	research and development
S&E	science and engineering
SDR	Survey of Doctorate Recipients
SED	Survey of Earned Doctorates
SRS	Division of Science Resources Studies
SESTAT	Scientists and Engineers Statistical Data System
TCU	Tribal College or University

EXECUTIVE SUMMARY

This report is the 10th in a series of Congressionally mandated biennial reports on the status of women and minorities in science and engineering. Its primary purpose is as an information source on the participation of women, minorities, and persons with disabilities in science and engineering.[1]

Changes since the first NSF report on women and minorities in 1982

Some of the findings in the first report of this series (NSF 1982)—the relatively small percentages of women and minorities earning science and engineering degrees and in science and engineering employment, the concentration of women and minorities in specific fields, the higher rates of part-time employment of women, the lower salaries of women and minorities, and the lower percentages of women in full professorships—still apply today. There has been progress, however, in several areas.

As did the 1982 report, the current report found that at all levels of education and in employment, women are less likely than men to choose science and engineering fields. Also, within science and engineering, women are more prevalent in some fields—psychology, social sciences, and biological sciences—than others. Data in the 1982 and this 2000 report both indicate that men and women differ little in labor force participation, but that women were more likely than men to be employed part time and to be unemployed; that women doctoral scientists and engineers employed in educational institutions were less likely than men to be tenured or have the rank of full professor—even after adjusting for age or years since doctorate; and that women scientists and engineers received lower salaries than men.

The current report also finds numerous similarities to the 1982 report's findings on participation of minorities in science and engineering. As in 1982, little difference exists among racial/ethnic groups in the proportion reporting management as their primary or secondary work activity, with the exception of Asians. A lower percentage of Asian scientists and engineers than of those from other racial/ethnic groups reported management as a primary or secondary work activity. Also, as in the 1982 report, black and Hispanic faculty were less likely than white faculty to be full professors, even after adjusting for differences in age; and blacks and Hispanics earned lower salaries than white and Asian scientists and engineers within fields and within broad age categories.

The current report found a number of areas in which progress has been made for women since the 1982 report was published. In education, both the numbers and percentages of women completing high school; enrolling in college; and completing bachelor's, master's, and doctoral degrees in science and engineering have increased over time. Women are more likely than men to graduate from high school and to enroll in college, and are as likely as men to graduate from college. In 1996, women received close to half (47 percent) of all science and engineering bachelor's degrees awarded, 39 percent of the master's degrees, and 33 percent of the doctorates. Women have accounted for an increasing percentage of the bachelor's degree recipients in all major science and engineering fields except mathematics and computer science. In science and engineering employment, women—especially younger women—are as likely as men to report management as their primary or secondary work activity. Among older age groups, however, women are less likely than men to report management as their primary or secondary work activity.

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[1] Generally, the definition of scientists or engineers used in this report includes those who hold at least a bachelor's degree in or are employed in the physical sciences; earth, atmospheric, and ocean sciences; agricultural sciences; biological sciences; mathematical sciences; computer sciences; social sciences; psychology; or engineering.

Progress is also evident in the educational attainment of minorities. Both numbers and percentages of blacks, Hispanics, and American Indians completing high school; enrolling in college; and completing bachelor's, master's, and doctoral degrees in science and engineering have increased over time. On the other hand, blacks, Hispanics, and American Indians remain less likely than whites and Asians to graduate from high school, enroll in college, and graduate from college. Field choice among bachelor's and master's degree recipients is now similar among racial/ethnic groups except for Asians. Blacks, Hispanics, and American Indians earn roughly the same percentage of all science and engineering degrees as they do of non-science and -engineering bachelor's degrees.

The first *Women and Minorities in Science and Engineering* report in 1982 did not present data on persons with disabilities. Each report in the series since then has included some data on this population. The current report found little difference between persons with and without disabilities in undergraduate major and science and engineering occupation and relatively few differences between scientists and engineers with and without disabilities in terms of salaries, percentages in management, percentages who are full professors, and field distribution. Differences do exist, however, in educational attainment and in science and engineering labor force participation rates. Students with disabilities were less likely than those without to graduate from high school, to enroll in college, and to graduate from college. Among scientists and engineers, one-third of those with disabilities were out of the labor force in 1997, compared with 11 percent of those without disabilities. Scientists and engineers with disabilities also had higher unemployment rates than those without.

Specific concerns

In addition to examining changes in participation since the 1982 report, the current report examines some specific concerns raised in the last few years:

- the declining numbers and percentages of women in computer science,
- the declining numbers and percentages of minorities in engineering,
- the effects of challenges to affirmative action on the undergraduate and graduate enrollment of minorities in science and engineering,
- the higher attrition rates of minorities in undergraduate education, and
- the paucity of data on persons with disabilities in science and engineering education.

The declining numbers and percentages of women in computer science

In computer science, the numbers and percentages of bachelor's degrees to women have decreased in the last decade. Women earned 37 percent of the bachelor's degrees in computer science in 1984 and 28 percent in 1996. The number of bachelor's degrees in computer science declined from 1984 to 1996 for both men and women, but the number of degrees awarded to women dropped faster than the number of degrees to men. Women earned a slightly lower percentage of the master's degrees in computer science in 1996 than they did in 1984 (27 and 29 percent, respectively) but a higher percentage of the doctoral degrees in computer science in 1996 than in 1984 (15 and 12 percent, respectively).

The declining numbers and percentages of minorities in engineering

Minority[2] full-time first-year undergraduate enrollment in engineering decreased 5 percent from 1992 to 1996. Black students accounted for most of the drop: Black full-time first-time undergraduate enrollment dropped 16 percent from 1992 to 1996, and blacks were the only racial/ethnic group in which undergraduate engineering enrollment went down between 1996 and 1997. However, recently released data from the Engineering Workforce Commission show that black full-time first-time engineering enrollment increased between 1997 and 1998.

The effects of challenges to affirmative action on the graduate enrollment of minorities in science and engineering

Changes in legislation or admissions policies took place in California and Texas in 1997 that barred the use of race in graduate admissions decisions. Data from the National Science Foundation's Survey of Graduate Students and Postdoctorates in Science and Engineering show no changes in patterns of total graduate science and engineering enrollment of blacks and Hispanics in these states between 1996 and 1997.

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[2] Minorities include Asian, black, Hispanic, and American Indian students.

INTRODUCTION

Overview

This report, the 10th in a series of Congressionally mandated biennial publications, documents both short- and long-term trends in the participation of women, minorities, and persons with disabilities in science and engineering education and employment. Its primary purpose is as an information source; it offers no endorsement or recommendations on policies or programs.

The report aims to examine changes in participation since the first report in this series was released in 1982. Despite the many changes that have occurred since then, several of the findings reported therein (NSF 1982) continue to hold true. Among these are the relatively small percentages of women and minorities who earn science and engineering degrees and who are employed in science and engineering, the concentration of women and minorities in specific fields, the higher rates of part-time employment for women, the lower salaries earned by women and minorities, and the lower percentages of women in full professorships.

Specific concerns

The report also presents data related to some specific concerns raised in the last few years:

- the declining numbers and percentages of women in computer science,
- the declining numbers and percentages of minorities in engineering,
- the effects of challenges to affirmative action on the undergraduate and graduate enrollment of minorities in science and engineering,
- the higher attrition rates of minorities in undergraduate education, and
- the paucity of data on persons with disabilities in science and engineering education.

Broad demographic characteristics of the U.S. population

Data on the demographic composition of the population are often useful in comparing the relative percentages of groups (men and women, various racial/ethnic groups, and persons with and without disabilities) participating in science and engineering education and employment. By way of background, text tables 1 and 2 provide data on the numbers and percentages of women, minorities, and persons with disabilities in the U.S. population by age group. In 1997, women were roughly half of the resident population of the United States. Whites were 73 percent, blacks 12 percent, Hispanics 11 percent, Asians/Pacific Islanders 4 percent, and American Indians/Alaskan Natives less than 1 percent of the population. Blacks and Hispanics constituted higher percentages of the younger population (those less than 25) than of the older population. The Census Bureau estimates that in 1994–95, about 20 percent of the population had some form of disability and about 10 percent had a severe disability.[1] The percentage of the population with a disability increases with age.

Racial and ethnic categories

In October 1997, the Office of Management and Budget (OMB) announced new government-wide standards for the collection of data on race and ethnicity.[2] Previously,

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[1] Estimates of the proportion of the population with disabilities vary due to differing definitions of the term "disability." See appendix A for a discussion of the limitations of estimates of the size of this group.

[2] These new standards, published in the *Federal Register* as "Standards for Maintaining, Collecting, and Presenting Federal Data on Race and Ethnicity" (62 FR 58781–58790), superseded OMB Statistical Policy Directive No. 15, "Race and Ethnic Standards for Federal Statistics and Administrative Reporting," which had been in place since 1977.

Text table 1.

Resident population of the United States, by sex, race/ethnicity, and age: 1997 [in thousands]

Sex and race/ethnicity	Total	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 74	75 and older
	Number															
Total	267,636	19,150	19,738	19,040	19,068	17,512	18,869	20,741	22,625	21,373	18,470	15,163	11,757	10,056	18,499	15,577
Men	131,018	9,801	10,104	9,757	9,827	8,979	9,470	10,340	11,266	10,596	9,074	7,383	5,646	4,745	8,268	5,740
Women	136,618	9,349	9,634	9,283	9,241	8,532	9,399	10,401	11,338	10,777	9,396	7,780	6,111	5,311	10,230	9,836
White	194,571	12,128	12,900	12,819	12,802	11,609	12,821	14,476	16,513	16,013	14,205	12,030	9,327	8,062	17,389	13,498
Asian/Pacific Islander	9,443	806	745	7[illegible]4	683	711	847	839	825	778	662	487	364	295	659	252
Black	32,298	2,703	2,976	2,790	2,819	2,466	2,477	2,610	2,716	2,464	1,990	1,438	1,161	967	2,128	1,128
Hispanic	29,348	3,347	2,928	2,515	2,580	2,571	2,567	2,664	2,415	1,976	1,494	1,116	836	677	1,513	642
American Indian/Alaskan Native	1,976	166	190	202	184	155	157	152	155	142	118	92	70	55	125	60
	Percent															
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Men	49.0	51.2	51.2	51.2	51.5	51.3	50.2	49.9	49.9	49.6	49.1	48.7	48.0	47.2	44.7	36.8
Women	51.0	48.8	48.8	48.8	48.5	48.7	49.8	50.1	50.1	50.4	50.9	51.3	52.0	52.8	55.3	63.1
White	72.7	63.3	65.4	67.3	67.1	66.3	67.9	69.8	73.0	74.9	76.9	79.3	79.3	80.2	94.0	86.7
Asian/Pacific Islander	3.5	4.2	3.8	3.8	3.6	4.1	4.5	4.0	3.6	3.6	3.6	3.2	3.1	2.9	3.6	1.6
Black	12.1	14.1	15.1	14.7	14.8	14.1	13.1	12.6	12.0	11.5	10.8	9.5	9.9	9.6	11.5	7.2
Hispanic	11.0	17.5	14.8	13.2	13.5	14.7	13.6	12.8	10.7	9.2	8.1	7.4	7.1	6.7	8.2	4.1
American Indian/Alaskan Native	0.7	0.9	1.0	1.1	1.0	0.9	0.8	0.7	0.7	0.7	0.6	0.6	0.6	0.5	0.7	0.4

SOURCE: U.S. Department of Commerce, Bureau of the Census, 1998. *Statistical Abstract of the United States: 1998*, Washington, DC: U.S. Government Printing Office.

Text table 2.
Population of the United States, by disability status and age: 1994–95
[in thousands]

Disability status	Total	Under 22 years	22 to 44	45 to 54	55 to 64	65 to 79	80 and older
				Number			
Total	261,749	84,527	95,002	30,316	20,647	24,471	6,785
Any disability	53,907	8,473	14,105	7,412	7,497	11,568	4,853
Severe disability	25,968	1,472	6,071	3,472	4,528	6,798	3,627
Not severe disability	27,938	7,001	8,035	3,939	2,969	4,769	1,225
				Percent			
Total	100	100	100	100	100	100	100
Any disability	21	10	15	24	36	47	72
Severe disability	10	2	6	11	22	28	53
Not severe disability	11	8	8	13	14	19	18

NOTE: See Appendix A, Technical Notes for definition of "severe disability."

SOURCE: U.S. Bureau of the Census, *Americans With Disabilities: 1994–95*, P70-61. (Washington, DC: U.S. Department of Commerce, 1997, <http://www.census.gov/prod/3/97pubs/p70-61.pdf>.)

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racial/ethnic groups were identified as white, non-Hispanic; black, non-Hispanic; Hispanic; Asian or Pacific Islander; and American Indian or Alaskan Native.

Because the old standards were in effect when the data for this report were collected, the racial/ethnic groups described in this report are those designated in the old standards. In text and figure references, these groups are referred to as white, black, Hispanic, Asian, and American Indian. Where data collection permits, subgroups of the Hispanic population are identified (e.g., Mexican, Puerto Rican).

In chapters 1 to 4, data on enrollments and degrees by race/ethnicity are presented for U.S. citizens and permanent residents only. This is because some of the underlying surveys do not collect race/ethnicity data for people with temporary visas. In chapter 5 (Employment), no distinctions by citizenship are made. Less than 2 percent of employed scientists and engineers have temporary visas.

Organization of this report

This report is organized into five chapters. The first four examine differences between men and women, among racial/ethnic groups, and between persons with and without disabilities in four areas of science and engineering education: undergraduate enrollment, undergraduate degrees, graduate enrollment, and graduate degrees. The fifth chapter examines science and engineering employment.

Because extensive information on precollege science and mathematics education is available elsewhere,[3] and because no new data on elementary and secondary science and mathematics achievement and course taking have been released since the previous version of this report, precollege science and mathematics education are not addressed here. Note, however, that differences (between men and women, among racial/ethnic groups, and between students with and without disabilities) in science and mathematics achievement, as measured by elementary and secondary assessment test scores and college entrance exams, and differences in science and mathematics course taking can become a basis for differences in postsecondary science and mathematics education, employment, and technological and science literacy. For a detailed explanation of differences by sex and race/ethnicity in precollege science and mathematics proficiency and coursework, see NSB (2000). For information on the precollege education of American Indians and Alaska Natives, see *Characteristics of American Indian and Alaska Native Education* (NCES 1997).

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[3] See, for example, current National Center for Education Statistics reports at <http://nces.ed.gov/pubsearch/index.asp>.

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New Racial/Ethnic Classifications

The new OMB standards for collecting data on race and ethnicity give individuals the option of selecting one or more racial categories from among the following five racial categories:

- **American Indian or Alaska Native.** A person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment.
- **Asian.** A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam.
- **Black or African American.** A person having origins in any of the black racial groups of Africa. Terms such as "Haitian" or "Negro" can be used in addition to "Black or African American."
- **Native Hawaiian or Other Pacific Islander.** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- **White.** A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.

The standards also provide for the collection of data on whether or not a person is of "Hispanic or Latino" culture or origin. This category is defined as follows:

- **Hispanic or Latino.** A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race. The term, "Spanish origin," can be used in addition to "Hispanic or Latino."

The new standards differ from the old in that:

- Respondents may select more than one racial category.
- The Asian/Pacific Islander category was split into two separate categories: one for Asian and one for Native Hawaiian or Other Pacific Islander.

Several changes were made in terminology and definition:

- The term "Alaska Native" replaces the term "Alaskan Native" in the American Indian or Alaskan Native category, and the definition was expanded to include peoples of South America (including Central America).
- Examples of countries were included in the definition of Asian (e.g., China, India, Vietnam, Philippine Islands).
- The black category added "or African American."
- The Hispanic category added "or Latino."

The new standards are being used in the 2000 decennial census; all Federal agencies are required to adopt the standards by January 1, 2003. For more information about the new standards, see OMB (1999).

Data sources, availability, and reliability

The data underlying this report come from a number of Federal and non-Federal sources, primarily surveys conducted by the National Science Foundation's Division of Science Resources Studies and the National Center for Education Statistics.

To the extent possible, long-term trends are examined herein. The availability of trend data, however, differs depending on the groups examined and the specific data series in question. For some groups and some data—for example, science and engineering degrees granted to women—longer time trend data are available; for others—for example, science and engineering employment—the time series are much shorter. Most of the data presented are through the year 1997, the latest available as of the writing of this report.

Statistical reliability

Some of the data sources used in this report are sample surveys and therefore have differing degrees of reliability. This report states differences in comparisons of groups

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or in trends in the data over time only if they are statistically significant at the 95 percent confidence level (i.e., the reported difference could be due to chance only 5 or fewer times in 100). Where possible, the impact of nonsampling errors such as incomplete coverage and nonresponse has been taken into account in the report's analyses. For more information on the statistical reliability, limitations, and availability of the data presented in this report, see appendix A, Technical Notes.

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CHAPTER 1

UNDERGRADUATE ENROLLMENT

Overview

Differences in completion of bachelor's degrees in science and engineering by sex, race/ethnicity, and disability status are related to differences in high school completion rates, college enrollment rates, college persistence and attainment rates, and choice of undergraduate major. In general, blacks, Hispanics, and American Indians are less likely than whites and Asians to graduate from high school, to enroll in college, and to graduate from college. Among those who do enroll in or graduate from college, however, they are about as likely as whites to choose science and engineering fields. Asians are more likely than other racial/ethnic groups to choose science and engineering fields. Similarly, persons with disabilities are less likely than those without disabilities to graduate from high school, to enroll in college, and to graduate from college; however, they are about as likely as those without disabilities to major in science and engineering. Women, on the other hand, are more likely than men to graduate from high school and to enroll in college; although they are as likely as men to graduate from college, they are less likely to choose science and engineering fields.

High school completion

This section looks at high school completion rates among people aged 25 to 29, since high school completion is usually a prerequisite for college enrollment.[1]

Women

Before 1980, the educational attainment of men was higher than that of women at all educational levels. In the early 1980s women equaled men, and, by the late 1980s, they surpassed men in terms of completion of a high school education. In 1998, women aged 25 to 29 were somewhat more likely than men to have graduated from high school—90 percent of women versus 87 percent of men. (See appendix table 1-2.)

Minorities

Racial/ethnic differences in high school completion rates contribute to differences in college enrollment. Some of the factors that may be related to the likelihood of staying in school include family income, English-speaking ability, geographic region of residence, age, and immigration status (NCES 1999c).

Hispanics, blacks, and American Indians have lower high school completion rates than do whites, and Hispanics (of any race) have the lowest high school completion rates. In 1998, 63 percent of Hispanics aged 25 to 29 were high school graduates, compared to 94 percent of their white counterparts. Although Hispanics made gains in high school completion in the 1970s, their completion rates have changed little since 1982. (See appendix table 1-2.) This group's low high school completion rates are partly explained, however, by the large number of foreign-born Hispanics who entered the United States without a high school education. Among Hispanics aged 25 to 29 who were born outside the 50 states and Washington, D.C., 51 percent had completed high school compared with 83 percent of those born in the United States. (See text table 1-1.)

Gains in high school completion by blacks in recent years have narrowed the educational gap between whites and blacks. In 1971, 82 percent of whites and 59 percent of blacks aged 25 to 29 had completed high school. By 1998, 94 percent of whites and 88 percent of blacks in that age range had completed high school. (See appendix table 1-2 and figure 1-1.)

Annual data from the U.S. Bureau of the Census's Current Population Survey are not available for American Indians and Asians because of small sample sizes. However, data from the decennial census indicate that, among

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[1] Educational attainment data in this report are for people between the ages of 25 to 29. This age range is used since some minority groups take longer on average to complete their bachelor's degrees. Older age groups are excluded because educational attainment is typically lower among them. Appendix table 1-1 shows educational attainment by age group, sex, and race/ethnicity.

Text table 1-1.
Percentage of 25- to 29-year-olds who had completed high school, by race/ethnicity and nativity: March 1998

Nativity	Total[2]	White, non-Hispanic	Black, non-Hispanic	Hispanic
Total[1]	88.1	93.6	88.2	62.8
Born outside 50 states and DC	68.0	92.6	86.7	51.0
Born in 50 states and DC	92.0	93.7	89.1	82.7

[1] Includes a small proportion for whom country of origin is unknown.

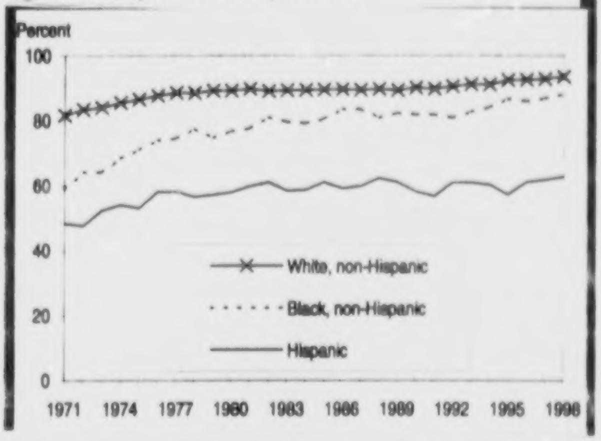
[2] Includes racial/ethnic groups other than those listed.

NOTE: People born in Puerto Rico and the U.S. territories are grouped with those born in other countries.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Survey, 1998.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Figure 1-1.
Percentage of 25- to 29-year-olds who have completed high school, by race/ethnicity: 1971–98



SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys, various years.

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Text table 1-2.
Percentage of persons 25 years old and over who had completed high school, by race/ethnicity: April 1990

Race/ethnicity	Percent
Total	75.2
White	77.9
Asian/Pacific Islander	77.5
Black	63.1
Hispanic	49.8
American Indian/Alaskan Native	65.5

NOTE: White, black, Asian/Pacific Islander, and American Indian/Alaskan Native include persons of Hispanic origin.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Decennial Census. In U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics: 1998* (NCES 1999-036).

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those 25 and older, a lower percentage of American Indians than of whites were high school graduates in 1990 (Pavel, Swisher, and Ward 1995). In that year, 66 percent of American Indians, compared with 78 percent of whites (including those of Hispanic origin), had completed 4 or more years of high school. (See text table 1-2.) Equal percentages (78 percent) of Asians and whites aged 25 and older in 1990 had completed 4 or more years of high school.

Students with disabilities

A higher percentage of students with disabilities than of those without disabilities drop out of high school. Among students who were eighth graders in 1988, 10 percent of those with disabilities and 6 percent of those without disabilities had dropped out of school by 1994. (See appendix table 1-3.) Students with disabilities were less likely than those without to have received a high school diploma by 1994 and were more likely to be enrolled in high school or working toward a General Education Development (GED) credential. Dropout and graduation rates vary by type of disability, with those with visual, hearing, or speech impairments least likely to have dropped out. Those with orthopedic impairments, learning disabilities, or "other" disabilities (including health problems, emotional problems, mental retardation, or other physical disabilities) were most likely to have dropped out.

College enrollment rates

College enrollment rates differ between men and women and among the various racial/ethnic groups. Women are more likely than men, and whites and Asians are more likely than other racial/ethnic groups, to enroll in college. The reasons for these different rates of enrollment are varied, with the literature citing such factors as differences in academic preparation or family characteristics (that is, family structure, parental education, and family income) (NCES 1998b). Discussion of racial/ethnic and sex differences in elementary and secondary education, especially as they relate to mathematics and science education, can be found in the *Science & Engineering Indicators—2000* (NSB 2000) as well as in several National Center for Education Statistics publications (e.g., NCES 1997a,b,c,d,f and NCES 1998a).

Women

Women are more likely than men to attend college. Among those aged 25 to 29 in 1998 who had completed high school, women were more likely than men to have attended college—68 percent of women and 63 percent of men had completed some college. (See appendix table 1-4.) Women are also more likely than men to enroll in college immediately following high school. Among 1996 high school completers aged 16 to 24, 70 percent of women compared to 64 percent of men were enrolled in college the October after completing high school (NCES 1999b, p. 209.)

In 1996, women accounted for more than half (56 percent) of undergraduate enrollment at all institutions; this was up slightly from 55 percent in 1990. (See appendix table 1-5.) The numbers of both women and men enrolled in college peaked in 1992, declined for several years, then increased again in 1996. The numbers of first-time first-year students enrolled at all institutions peaked in 1991, dropped through 1994, and increased in 1995 and 1996. This upward trend in first-time first-year enrollment suggests that total enrollment may continue to increase in the near future. (See appendix table 1-6.)

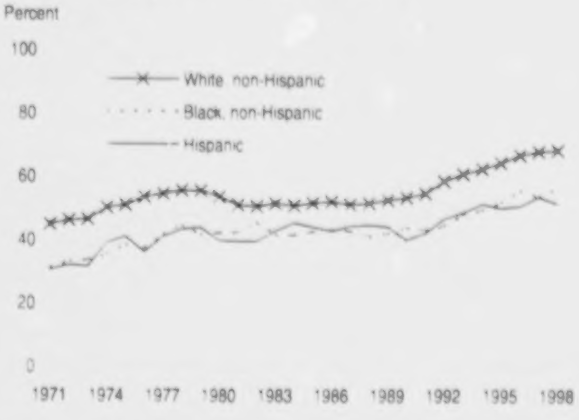
Minorities

Blacks and Hispanics are less likely than other racial/ethnic groups to attend college. Among high school graduates aged 25 to 29 in 1998, 68 percent of whites, 57 percent of blacks, and 52 percent of Hispanics had completed some college. (See appendix table 1-4 and figure 1-2.)

Blacks and Hispanics were also less likely than whites to enroll in college immediately following high school. The percentages of black and Hispanic high school graduates who had enrolled in college the October after completing high school rose from 41 and 49 percent, respectively, in 1972–74 to 55 and 57 percent, respectively, in 1995–97.[2] The percentage of white high school graduates who had enrolled in a postsecondary institution the October after completing high school rose from 50 percent in 1972 to 68 percent in 1997 (NCES 1999a, p. 140).[3]

Among U.S. citizens and permanent residents, nonwhite enrollment in undergraduate programs increased over the last two decades, both in absolute numbers and as a percentage of total undergraduate enrollment. The number of black students rose from approximately 1.1 million in 1990 (9.5 percent of the total undergraduate enrollment) to approximately 1.4 million in 1996 (10.9 percent of the total undergraduate enrollment). (See appendix table 1-5.) Similarly, the number of Hispanic undergraduates grew from about 0.9 million (7.2 percent) in 1990 to about 1.2 million (9.8 percent) in 1996, while the number of American Indian students increased from around 95,000 (0.8 percent) to around 123,000 (1.0 percent) over the same time period. Concurrently, the number of Asian undergraduates grew from approximately 507,000 (4.2 percent) to approximately 722,000 (5.8 percent). Since 1992, more than half the undergraduate students in each racial/ethnic group have been women. (See appendix table 1-5.)

Figure 1-2.
Percentage of 25- to 29-year old high school completers with some college, by race/ethnicity: 1971–98



SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys, various years.

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[2] Because both the black and Hispanic enrollment rates fluctuated greatly over this time period due to small sample sizes, a 3-year average is used.

[3] Due to relatively small sample sizes, NCES included American Indians and Asians in the total but did not list their individual completion rates.

For all racial/ethnic groups other than white, the numbers of both male and female undergraduates increased between 1990 and 1996. Declining enrollments for whites may be attributed to declines in the college-age population. The white college-age population (18- to 24-year-olds) has been steadily declining since a 1981 peak (with the exception of a brief upturn in 1993). (See figure 1-3.) The black college-age population size remained fairly constant from 1986 to 1996, while the Hispanic college-age population steadily increased. First-time first-year enrollment increased for men and women in all racial/ethnic groups between 1995 and 1996 (and for all but black women between 1994 and 1995) suggesting continued increases in total enrollment over the next several years. (See appendix table 1-6.)

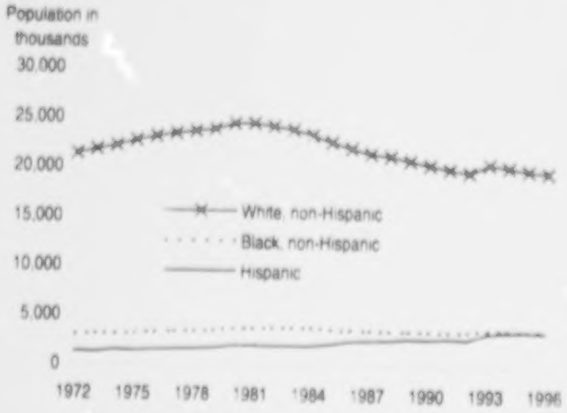
Students with disabilities

Among 1988 eighth graders who completed high school, students with disabilities were less likely (63 percent) than those without disabilities (72 percent) to have enrolled in postsecondary education by 1994. (See appendix table 1-7.) Findings from the National Education Longitudinal Study indicate that students with disabilities may be less academically prepared for college than those without disabilities: they were more likely to have taken remedial courses, less likely to have taken advanced placement courses, and had lower grade point averages and lower SAT scores (NCES 1999d). Among 1998 college freshmen, students with disabilities were more likely than those without to have earned Cs and Ds in high school; were less likely to have met the recommended years of high school study in mathematics, biological sciences, and physical sciences; and to have spent more time between high school graduation and entry into college (Henderson 1999).

Students with disabilities were roughly 6 percent of those enrolled in undergraduate institutions in 1996. (See figure 1-4.) They reported a range of disabilities—visual, hearing, speech, and orthopedic (mobility) impairments; learning disabilities; and other disabilities or impairment—signifying a range of needs and a range of special accommodations that may be required (SRI International 1997). Students with learning disabilities comprised the largest group of students with disabilities.

On average, undergraduate students with disabilities were older than those without; however, there were no statistically significant differences between students with and without disabilities in full-time enrollment or receipt of financial aid. About half of both were enrolled full time and about half of both received financial aid. (See appendix table 1-8.)

Figure 1-3.
The U.S. population aged 18 to 24 years old: October 1972 to 1996



NOTE: Hispanics may be of any race.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey.

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Two-year institutions

Many of those who enroll in 2-year colleges are seeking certificates or associate's degrees, but some find 2-year colleges an inexpensive means of completing the first 2 years of a college education before transferring to a 4-year school. About 22 percent of those postsecondary students who entered a 2-year institution in 1989–90 transferred to a 4-year institution (NCES 1998b).[4]

About 44 percent of all undergraduates are enrolled in 2-year colleges (see appendix tables 1-5 and 1-9), but relatively few earn associate's degrees and few are seeking degrees in science and engineering. Among beginning students at 2-year colleges in the 1989–90 school year, only 24 percent had earned an associate's or higher degree by 1994 (NCES 1998b) and, as discussed in chapter 2, only 13 percent of associate's degrees are in science and engineering. Most of these degrees are in either computer science or engineering technologies.

Women

Total undergraduate enrollment in 2-year colleges increased in 1996 after dropping for several years. More specifically, full-time enrollment of both men and women

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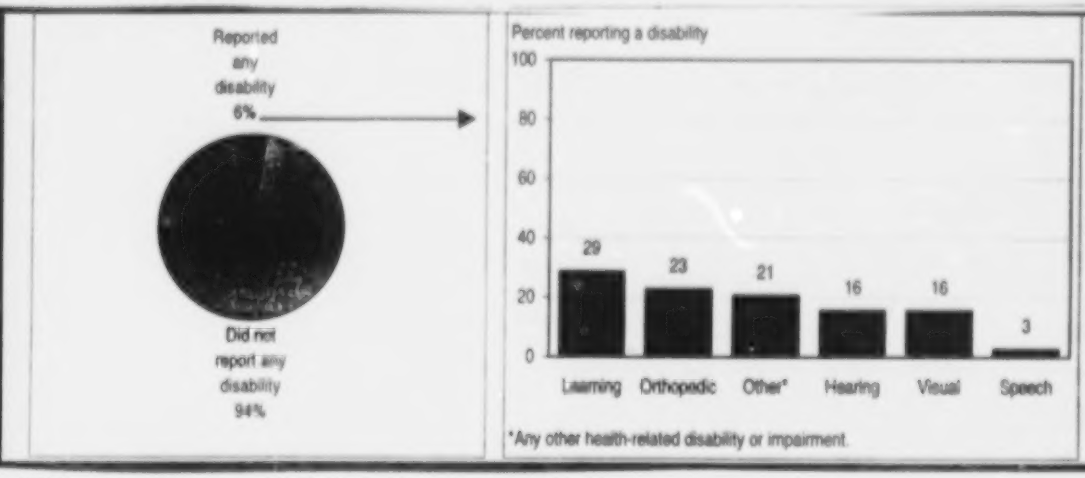
[4] These data are from the U.S. Department of Education's Beginning Postsecondary Students Longitudinal Study. See NCES (1997e) for a detailed discussion of transfer behavior.

Figure 1-4.

Percentage of 1995-96 undergraduates who reported a disability, and among those with disabilities, the percentage reporting each disability type: 1996



*Any other health-related disability or impairment.

NOTE: Percentages do not sum to 100 because some students reported multiple disabilities.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:96), in *Students with Disabilities in Postsecondary Education: A Profile of Preparation, Participation and Outcomes* (NCES 1999-187).

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in 2-year colleges, which had declined since 1992, increased in 1996. Women accounted for more than half (57 percent) of total enrollment in 2-year colleges in 1996; this was the same proportion as in 1990. (See appendix table 1-9.)

Where Are Women Enrolled?

Men and women differ little in terms of the Carnegie classification[5] of the schools in which they are enrolled: a little less than half of both are enrolled in 2-year institutions, about one-fifth are enrolled in master's granting (comprehensive) institutions, and a little more than one-tenth are in the Nation's top (Research I) institutions. (See text table 1-3.)

Minorities

Higher percentages of Hispanic and American Indian undergraduates than of other racial/ethnic groups are enrolled in 2-year colleges—54 percent of Hispanics and 52 percent of American Indians compared with 46 percent of blacks, 45 percent of Asians, and 42 percent of whites. (See appendix tables 1-5 and 1-9.)

The number of Asians, blacks, Hispanics, and American Indians (both men and women) enrolled in 2-year institutions has been increasing since 1990. The number of white women enrolled in 2-year institutions has been declining since 1992, while the number of white men increased slightly in 1996 after dropping from 1992 to 1995.

Students with disabilities

Students with disabilities are more likely to enroll in 2-year colleges than those without disabilities. Of 1988 eighth graders who were enrolled in postsecondary education by 1994, approximately 45 percent of those with disabilities enrolled in public 2-year institutions compared with 33 percent of those without disabilities (NCES 1999d, p. 30). Type of disability makes little if any difference in the choice of 2-year versus 4-year institutions, except for those with orthopedic impairments, who are more likely to enroll in 4-year institutions. (See appendix table 1-7.)

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[5] The Carnegie classification of colleges and universities groups institutions into clusters with similar missions and by the highest level of degree conferred. The 1994 Carnegie classification system comprises the following categories: Research universities I, Research universities II, Doctoral universities I, Doctoral universities II, Master's (comprehensive) colleges and universities I, Master's (comprehensive) colleges and universities II, Baccalaureate (liberal arts) colleges I, Baccalaureate colleges II, Associates of arts colleges, and Specialized institutions (The Carnegie Foundation for the Advancement of Teaching 1994).

Text table 1-3.

Undergraduate enrollment at all academic institutions, by sex and Carnegie classification: fall 1996

Sex	Total	Research I	Research II	Doctorate granting	Comprehensive	Engineering	Liberal arts	2-year institutions	Other
Total	100.0	11.7	4.2	7.6	20.8	0.4	8.3	44.1	3.2
Women	100.0	10.8	3.8	7.4	21.2	0.2	8.7	45.0	3.1
Men	100.0	13.1	4.7	7.8	19.8	0.7	7.7	42.8	3.3

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

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Where Are Minorities Enrolled?

Racial/ethnic groups differ greatly in the types of institutions in which undergraduates enroll. For example, Asians are far more likely than other groups to enroll in Research I institutions: 21 percent of Asian undergraduates versus 7 to 12 percent of other racial/ethnic groups are enrolled in Research I institutions. Black and Hispanic undergraduates have the lowest percentages enrolled in Research I institutions. Higher percentages of black and white undergraduates than of other groups are enrolled in comprehensive and liberal arts institutions. American Indian and Hispanic undergraduates are the most likely of the racial/ethnic groups to enroll in 2-year institutions. (See text table 1-4.)

The majors chosen by students with disabilities attending 2-year institutions differed relatively little from those of their counterparts without disabilities: 33 percent of students with disabilities and 36 percent of the general population majored in science, mathematics, engineering, or technology (SRI International 1997, p. II-8).

Four-year colleges and universities

More than half (56 percent) of all undergraduates, and almost three-fourths (73 percent) of full-time undergraduates, were enrolled in 4-year colleges in 1996. (See appendix tables 1-5 and 1-10.) The number of students enrolled in 4-year institutions increased in 1995 and 1996 after having dropped for several years.

Women

The number of women enrolled at 4-year institutions—both total and full time—increased in 1996, while the number of men decreased. Women were 55 percent of all undergraduate students at 4-year institutions in 1996, up from 53 percent in 1990. (See appendix table 1-10.)

Minorities (U.S. citizens and permanent residents)

A majority of black (54 percent), Asian (55 percent), and white (58 percent) undergraduate students were enrolled in 4-year institutions in 1996. (See appendix tables 1-5 and 1-10.) Although the numbers of white men and white women enrolled in 4-year institutions have been declining since the early 1990s, the numbers of Asian, black, Hispanic, and American Indian men and women enrolled in 4-year institutions have been increasing—with one exception. The number of black men enrolled in 4-year institutions, which rose in the early 1990s, stayed fairly constant between 1993 and 1996.

The numbers of first-time first-year undergraduate students enrolled at 4-year institutions increased in both 1995 and 1996. (See appendix table 1-11.) The increases occurred among men and women of all racial/ethnic groups, again with the exception of black men. The number of first-time first-year undergraduate black men dropped slightly in 1995, but increased again in 1996; it did not, however, regain its 1994 level.

Field choice

The Higher Education Research Institute at the University of California–Los Angeles annually conducts a survey of freshmen in 4-year colleges and universities. These data show a large difference between men and women, but little difference by race/ethnicity (with the exception of Asians), in intentions to major in science and engineering. In 1998, about one-third of white, black, Hispanic, and American Indian freshmen and 43 percent of Asian freshmen intended science and engineering

Text table 1-4.

Undergraduate enrollment at all academic institutions, by race/ethnicity and Carnegie classification: fall 1996

Race/ethnicity	Total	Research I	Research II	Doctorate granting	Comprehensive	Engineering	Liberal arts	2-year institutions	Other
Total	100.0	11.7	4.2	7.6	20.6	0.4	8.3	44.1	3.2
White, non-Hispanic	100.0	12.0	4.8	7.8	20.6	0.4	8.8	42.5	3.1
Asian/Pacific Islander	100.0	21.4	3.6	6.6	16.4	0.4	3.8	45.4	2.4
Black, non-Hispanic	100.0	7.4	2.8	7.3	23.3	0.3	9.4	46.2	3.3
Hispanic	100.0	7.6	1.8	6.2	19.9	0.6	6.5	53.8	3.6
American Indian/Alaskan Native	100.0	9.7	4.5	6.5	18.1	0.2	5.3	52.4	3.2

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

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majors (NSB 2000). White, black, Hispanic, and American Indian freshmen differed little in their choice of field—roughly equal percentages of each group intended majors in the natural sciences, social sciences, and engineering. Black and Asian freshmen, though, were more likely than other groups to plan majors in math and computer sciences, and Asian freshmen were more likely than other groups to plan majors in engineering. Within each racial/ethnic group, women were less likely than men to intend to major in science and engineering.

Students with disabilities are as likely as students without disabilities to choose science and engineering majors at 4-year institutions. Among those in 4-year colleges in 1993, about 30 percent of both the general population and of students with disabilities majored in science, mathematics, engineering, or technology (SRI International 1997). Similarly, among undergraduates in the 1995–96 school year, roughly equal percentages of students with and without disabilities were majoring in science and engineering. (See appendix table 1-12.)

Engineering enrollment

Unlike other fields, engineering programs generally require students to declare a major as freshmen (NSB 2000). Data on engineering enrollments and degrees are available from the Engineering Workforce Commission's annual survey of accredited engineering schools throughout the United States. These data provide information on trends in total and first-time engineering enrollment by sex and by race/ethnicity. Overall, total undergraduate engineering enrollment increased in 1997 following steady declines from 1993 through 1996.

Women

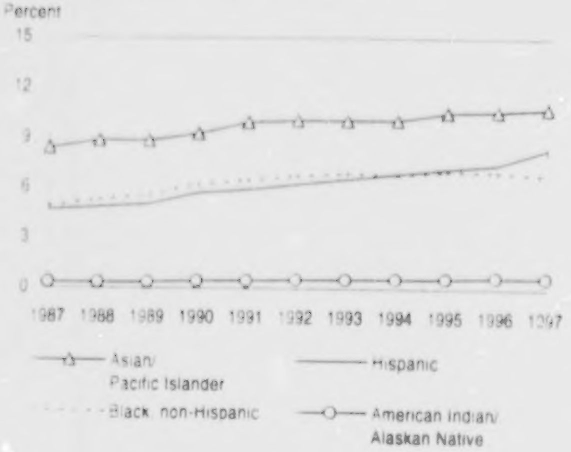
Women were 19 percent of total undergraduate enrollment in engineering programs in 1997, up from 15 percent a decade earlier. (See appendix table 1-13.) They were a slightly higher percentage (20 percent) of full-time first-year engineering enrollment. (See appendix table 1-14.) The numbers of women enrolled in undergraduate engineering programs increased every year from 1989 to 1997, while the number of men declined every year between 1990 and 1996, with the exception of 1992.

Minorities

Enrollment of white students in engineering followed the general pattern of total undergraduate engineering enrollment, decreasing from 1987 through 1996 and rising in 1997, but the trends for other racial/ethnic groups followed different patterns. Hispanic, American Indian, and Asian enrollment in engineering generally increased between 1987 and 1997. Black enrollment in engineering peaked in 1993 and dropped in 3 of the 4 years from 1994 to 1997. Blacks were the only racial/ethnic group in which undergraduate engineering enrollment went down from 1996 to 1997; the decrease was, however, less than 1 percent. (See appendix table 1-13.) Moreover, recently released data from the Engineering Workforce Commission show an 8.4 percent increase in black engineering enrollment between 1997 and 1998 (NACME 1999).

The percentages of undergraduates enrolled in engineering programs who are Hispanic, American Indian, and Asian increased from 1987 to 1997, while the percentage of whites decreased. The percentage of blacks rose from 1987 to 1993, but remained relatively constant from 1994 through 1997. (See figure 1-5.)

Figure 1-5.
Percentage distribution of minority undergraduate engineering students, by race/ethnicity: 1987–97



SOURCE: Engineering Workforce Commission of the American Association of Engineering Societies, special tabulations.

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Undergraduate persistence and attainment

Two sources of data, the U.S. Bureau of the Census's Current Population Survey (CPS) and the National Center for Education Statistics's Beginning Postsecondary Students Longitudinal Study (BPS), provide information on the undergraduate persistence and attainment of women and minorities. The March supplement to the CPS provides estimates of long-term trends in the educational attainment of the U.S. population.

BPS provides data on the persistence toward and completion of bachelor's degrees of undergraduate students. This survey followed a group of students first enrolled in undergraduate institutions in the 1989–90 school year through 1994. The data permit comparisons of differences by sex, race/ethnicity, and disability status in persistence toward a bachelor's degree. This survey found that some of the factors related to persistence include:

- age (those entering postsecondary education at younger ages are more likely to complete a bachelor's degree in 5 years than those entering at older ages);
- enrollment status (those who initially enroll on a full-time basis are more likely to complete their degree than those enrolled part time);
- socioeconomic status and parents' education (as these increase, so does likelihood of completion); and
- level of first institution (those who begin undergraduate programs in 4-year institutions are more likely to complete their degree than those who begin in 2-year institutions) (NCES 1998b).

Women

Women and men are about equally likely to graduate from college. Among those who were aged 25 to 29 in 1998 and who had completed high school, 32 percent of women and 30 percent of men had earned a bachelor's degree or higher. (See appendix table 1-15.)

Women are more likely than men to complete a bachelor's degree within 5 years. Among students who entered a bachelor's degree program in 1989, 50 percent of women compared to 41 percent of men had earned a bachelor's degree by spring 1994. (See text table 1-5.) Additionally, a higher percentage of men (31 percent) than of women (26 percent) had earned no degree and were no longer enrolled toward a bachelor's degree five years later.

Minorities

Blacks and Hispanics are less likely than whites to graduate from college. Among those who were aged 25 to 29 in 1998 and who had completed high school, 18 percent of blacks, 16 percent of Hispanics, and 34 percent of whites had earned bachelor's degrees or higher. (See appendix table 1-15 and figure 1-6.) Small sample sizes in the CPS do not permit reporting of data on the educational attainment of Asians and American Indians.

Black and Hispanic students are less likely than white and Asian students to complete a bachelor's degree within 5 years. Forty-eight percent of white students, 47 percent of Asian students, 34 percent of black students, and 32 percent of Hispanic students who entered a bachelor's degree program in 1989 had earned their degree by spring 1994. Thirty-seven percent of both black and Hispanic students, compared with 27 percent of white students and 26 percent of Asian students, had earned no degree and were no longer enrolled in a bachelor's program in 1994. (See text table 1-5.)

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Text table 1-5.

Percentage distribution of 1989–90 beginning postsecondary students seeking bachelor's degrees, by persistence toward and completion of bachelor's and other degrees as of spring 1994, by sex and race/ethnicity

Sex and race/ethnicity	Completed a degree			Still enrolled for bachelor's [2]	No degree, no longer enrolled toward bachelor's [3]
	Completed bachelor's	Completed associate's [1]	Completed certificate [1]		
Sex					
Men	41.3	4.8	2.7	20.3	30.9
Women	50.3	5.4	4.0	14.6	25.7
Race/ethnicity					
White, non-Hispanic	48.1	4.9	3.3	16.6	27.0
Asian/Pacific Islander	46.8	5.3	0.6	21.8	25.5
Black, non-Hispanic	34.3	7.3	3.6	18.0	36.8
Hispanic	32.4	3.5	5.4	22.1	36.6
American Indian/Alaskan Native	–	–	–	–	–

[1] Includes only students who are no longer working toward a bachelor's degree but who had completed another type of degree or award.

[2] Includes students who had completed another type of degree or award but are still working toward a bachelor's degree.

[3] Includes students who are no longer enrolled and students who are still enrolled but who are no longer working toward a bachelor's degree.

KEY: – = insufficient number of cases.

NOTE: Details may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 1998*, Supplemental Table 12-1 (NCES 98-013).

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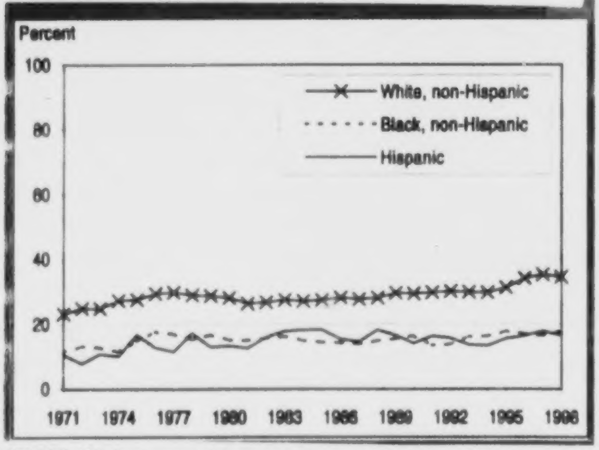
Figure 1-6.

Percentage of 25- to 29-year old high school completers who had completed college, by race/ethnicity: 1971–98



SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Survey, various years.

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Small sample sizes in both the CPS and BPS do not permit reporting of data on the undergraduate persistence and attainment of American Indian students. Data from the National Collegiate Athletic Association Division I colleges and universities in 1996, however, indicate that American Indians had the lowest graduation rate at these institutions of any racial/ethnic group (Wilds and Wilson 1998). American Indian students are disproportionately likely to be single parents, have dependents, be financially independent of their parents, and enroll part time part year—all characteristics associated with reduced likelihood of degree completion (NCES 1998a).

Students with disabilities

Students with disabilities are less likely than those without disabilities to be enrolled in a bachelor's degree program or to have completed a bachelor's degree within 5 years. Fifty-three percent of students with disabilities who were enrolled in the 1989–90 academic year were still enrolled or had attained a degree by 1994 compared with 64 percent of those without disabilities. (See appendix table 1-16.) Conversely, a higher proportion of those with disabilities (47 percent) than of those without (36 percent) had left college without earning a degree.

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CHAPTER 2

UNDERGRADUATE DEGREES

Overview

Analyzing historical trends on the participation of women and minorities in science and engineering education helps in understanding their current rates of participation in science and engineering employment. Currently employed scientists and engineers include recent degree recipients as well as those who earned degrees 40 to 50 years ago. Although comparable data on science and engineering degrees are not available 40 to 50 years back, data on science and engineering bachelor's, master's, and doctoral degrees to women are available from 1966 to 1996. For racial/ethnic groups, comparable data are available only from 1985, and comparable annual data are available only from 1989. Even with these limited time series, though, it is possible to see the extremely small percentages of women and minorities earning degrees in science and engineering in years past. However, both the numbers and percentages of women and minorities earning science and engineering degrees at all levels (associate's, bachelor's, master's and doctorate) have increased over time.

Associate's degrees

About half of entering undergraduate students are seeking either an associate's degree or a certificate. After 5 years, however, only 24 percent have actually earned such a degree or a higher level degree (NCES 1998b). In all, only 13 percent of associate's degrees are awarded in science and engineering. Although associate's degrees are the terminal degree for some, others continue their education and subsequently earn higher degrees. About 13 percent of 1995 and 1996 science and engineering bachelor's degree recipients had previously earned associate's degrees. (See text table 2-1.)

Women

The number of associate's degrees in science and engineering awarded to women rose from 18,282 in 1983 to 21,070 in 1996; concurrently, the number awarded to men dropped from 61,218 to 46,750. (See appendix table 2-1.) Women earned 31 percent of the associate's degrees in science and engineering in 1996, up from 23 percent in 1983. In 1996, they earned at least 45 percent of the associate's degrees awarded in computer science, biological sciences, physical sciences, psychology, social sciences, and interdisciplinary sciences, but only 13 percent of those in engineering and 14 percent in engineering technologies. The largest increases from 1983 to 1996 in the numbers of associate's degrees awarded to women were in biological sciences, psychology, social sciences, and interdisciplinary or other sciences. (See appendix table 2-1.)

The largest numbers of science and engineering associate's degrees are awarded in computer science and engineering technologies. From 1983 to 1996, the number

Text table 2-1.
Percentage of academic year 1995 and 1996 science and engineering bachelor's graduates who had previously earned associate's degrees, by sex, race/ethnicity, and disability status: 1997

Total	13.2
Women	13.7
Men	12.7
White, non-Hispanic	13.4
Asian/Pacific Islander	11.5
Black, non-Hispanic	11.2
Hispanic	14.5
American Indian/Alaskan Native	19.7
Persons without disabilities	12.8
Persons with disabilities	23.3

NOTE: The only statistically significant difference between groups is for persons with and without disabilities.

SOURCE: National Science Foundation, Survey of Recent College Graduates, 1997.

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of associate's degrees in computer science awarded to women and men followed similar patterns. (See figure 2-1.) Associate's degrees in engineering technologies decreased for men but increased slightly for women in 1996.

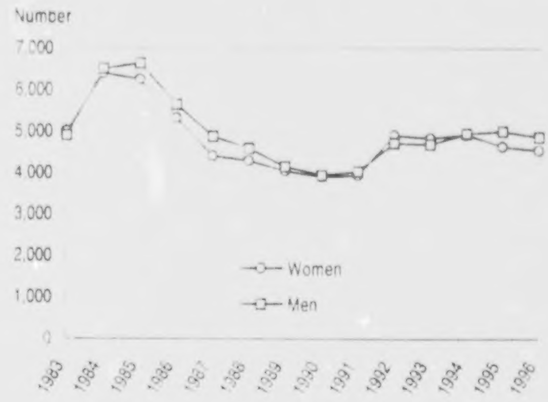
Minorities[1]

In 1996, blacks earned 9 percent of the associate's degrees awarded in science and engineering, Hispanics earned 8 percent, Asians 5 percent, and American Indians 1 percent; in contrast, whites earned 73 percent. (See text table 2-2.) Hispanics and American Indians, as noted in chapter 1, are more likely than other groups to enroll in 2-year colleges.

The number of associate's degrees in science and engineering increased for Asian, black, and American Indian students and decreased for white and Hispanic students from 1995 to 1996. (See appendix table 2-2.) The number of associate's degrees in computer science increased for blacks and American Indians and decreased

Figure 2-1.

Associate's degrees in computer science, by sex: 1983–96



SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

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[1] Data refer to U.S. citizens and permanent residents only.

Text table 2-2.

Percentage distribution of associate's degrees, by race/ethnicity and field: 1996

Field	Total	U.S. citizens and permanent residents						Nonresident aliens
		White, non-Hispanic	Asian/Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Other/ unknown	
All fields	100.0	74.6	4.2	9.1	7.2	1.0	2.1	1.9
Science and engineering, total	100.0	73.1	4.9	9.0	8.2	1.2	1.9	1.7
Mathematics	100.0	57.9	13.6	4.7	14.2	1.2	2.0	6.3
Computer science	100.0	66.3	5.6	11.8	10.0	1.4	2.3	2.6
Physical sciences	100.0	65.5	10.1	6.5	6.8	1.7	4.1	0.1
Earth, atmospheric, and ocean sciences	100.0	84.6	4.1	5.6	1.5	0.0	2.6	1.5
Agricultural sciences	100.0	90.7	0.3	0.9	3.9	2.1	1.2	0.8
Biological sciences	100.0	65.4	10.4	5.5	10.7	2.0	3.1	2.9
Psychology	100.0	69.1	3.6	9.3	11.3	2.7	2.1	2.0
Social sciences	100.0	59.1	6.3	11.0	13.2	3.8	2.7	3.9
Engineering	100.0	73.1	7.2	6.6	6.5	0.5	2.6	3.4
Science technologies	100.0	72.8	6.2	11.1	5.8	0.2	2.9	1.0
Engineering technologies	100.0	75.8	4.1	8.6	7.9	0.7	1.9	1.0
Other science and engineering technologies	100.0	82.2	4.0	13.5	0.2	0.2	0.0	0.0
Interdisciplinary or other sciences	100.0	76.6	4.6	10.4	6.0	0.8	0.5	1.0

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

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for all other racial/ethnic groups in 1996. The number of associate's degrees in engineering technologies decreased for all racial/ethnic groups in 1996.

Minority women

In 1996, minority women earned a larger proportion of associate's degrees in science and engineering awarded to their respective racial/ethnic groups than did white women. Women earned 48 percent of the science and engineering associate's degrees awarded to American Indians, 38 percent of those to blacks, 34 percent of those to Hispanics, and 33 percent of those to Asians. (See appendix table 2-3.) In contrast, women earned only 29 percent of the science and engineering associate's degrees awarded to whites.

In many fields, women earned well over half of the associate's degrees in science and engineering awarded to their respective racial/ethnic group. In each racial/ethnic group, women earned more than half of the associate's degrees in the biological sciences, psychology, and the social sciences. In the physical sciences, black, American Indian, and Asian women earned half of the associate's degrees awarded to their racial/ethnic groups. In computer science, women earned more than half of the associate's degrees awarded to blacks, Hispanics, and American Indians.

Persons with disabilities

As noted in the previous chapter, students with disabilities are more likely to enroll in 2-year colleges than those without disabilities. Similarly, persons with disabilities are more likely than those without to earn associate's degrees prior to earning a bachelor's degree. Among 1995 and 1996 science and engineering bachelor's degree recipients, 23 percent of persons with disabilities, compared with 13 percent of those without disabilities, had previously earned associate's degrees. (See text table 2-1.)

Bachelor's degrees

Bachelor's degrees are the most prevalent degree in science and engineering, accounting for more than three-quarters of all degrees awarded in science and engineering—384,674 degrees out of 507,217 total science and engineering degrees (NSF 1999).

Historically, about one-third of all bachelor's degrees are earned in science and engineering fields. With only a few exceptions, the numbers of bachelor's degrees in both science and engineering and in non-science and -engineering fields have been increasing since 1966. (See appendix table 2-4.)

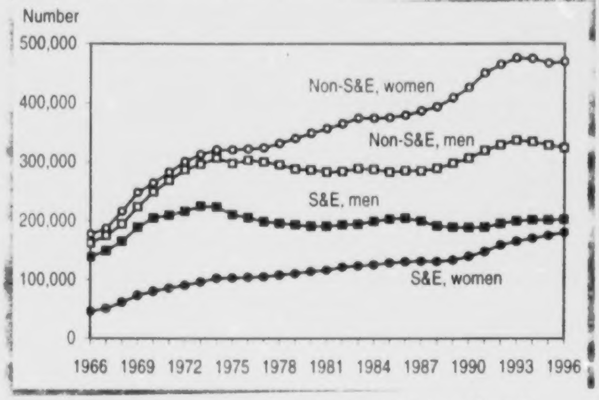
Women

The number of bachelor's degrees in science and engineering awarded to women has increased each year since 1966 (with the single exception of 1988), reaching 181,333 in 1996. (See appendix table 2-5.) The number of bachelor's degrees in science and engineering awarded to men has fluctuated around 200,000 since 1976. (See figure 2-2.) Women earn more bachelor's degrees in non-science and -engineering fields than do men. In fact, women have received more than half of all bachelor's degree awarded in non-science and -engineering fields since at least 1966 and 59 percent in 1996. (See appendix table 2-6.)

Women account for nearly half of all science and engineering bachelor's degree awards. The percentage of bachelor's degrees in science and engineering earned by women, which had held fairly constant in the early to mid-1980s at 38 to 39 percent, has been steadily increasing since then, and reached 47 percent in 1996. (See appendix table 2-6.)

Figure 2-2.

Bachelor's degrees awarded in science and engineering (S&E) fields and in non-S&E fields, by sex: 1966–96



SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey

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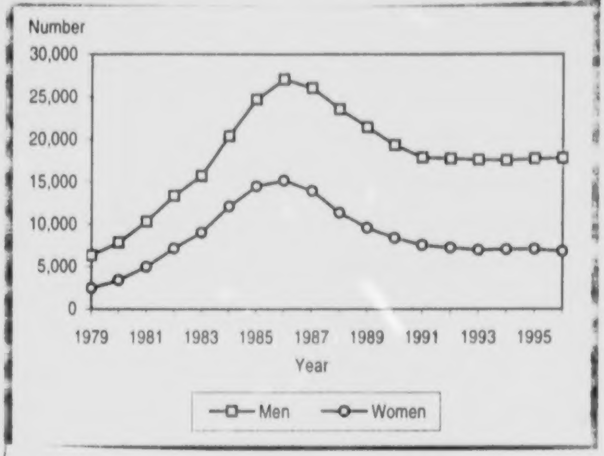
Women have received an increasing share of the bachelor's degrees awarded in all major science and engineering fields except mathematics and computer science. (See appendix table 2-6.) In engineering, for example, women earned less than 1 percent of the bachelor's degrees in 1966 but 18 percent in 1996. In mathematics, women have earned 46 to 47 percent of the bachelor's degrees awarded since 1985. In computer science, the proportion of female bachelor's degree recipients reached a high of 37 percent in 1984 and dropped to 28 percent in 1996. During the 1987–96 period, the number of bachelor's degrees awarded in computer science declined for both men and women. (See figure 2-3.)

A dissimilarity index was constructed to measure the amount of similarity or dissimilarity in the distributions of men and women by bachelor's degree field.[2] In 1966, the dissimilarity index was 25.6, indicating that 25.6 percent of women would have to switch their bachelor's degree field in order to match the distribution of fields for male bachelor's degree recipients. By 1996, the dissimilarity index was 15.2. (See appendix table 2-6.)

In 1996, women earned nearly three-quarters of the bachelor's degrees awarded in psychology (73 percent), and over half of those in the biological sciences and in most social sciences. They earned 46 percent of the bachelor's degrees in mathematics, 43 percent in chemistry, and 40 percent in the agricultural sciences. Women earned approximately a third of the bachelor's degrees in astronomy (37 percent), earth sciences and ocean sciences (35 percent in each), economics (30 percent), computer science (28 percent), and chemical engineering (32 percent). On the other hand, women earned less than 20 percent of the bachelor's degrees awarded in aerospace engineering, electrical engineering, mechanical engineering, physics, and atmospheric sciences in 1996. (See appendix table 2-7.)

Figure 2-3.

Bachelor's degrees in computer science, by sex: 1979–96



SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

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Minorities

The number of science and engineering bachelor's degrees earned by whites leveled off in the 1990s, and the number of non-science and -engineering bachelor's degrees earned by whites decreased from 1994 to 1996. (See appendix table 2-8.) In sharp contrast, the numbers of bachelor's degrees earned by Asians, blacks, Hispanics, and American Indians in both science and engineering and non-science and -engineering fields increased each year from 1989 to 1996.

Blacks, Hispanics, and American Indians earn roughly the same percentages of science and engineering bachelor's degrees as of non-science and -engineering degrees. Blacks earned 7 and 8 percent of science and engineering and non-science and -engineering bachelor's degrees, respectively, in 1996. Hispanics earned 6 percent of both; American Indians earned 0.6 percent of both. Both the numbers and percentages of degrees in science and in engineering earned by nonwhite racial/ethnic groups have risen since 1989. (See figure 2-4 and appendix table 2-9.)

With the exception of Asians, for whom almost half of all bachelor's degrees received are in science and engineering, about one-third of bachelor's degrees earned by each racial/ethnic group are in science and engineering. (See text table 2-3.) The field distribution of these science and engineering bachelor's degrees differs by racial/ethnic group.

Blacks earned higher percentages of the bachelor's degrees awarded in the social sciences (especially sociology where they earned 15 percent of all bachelor's degrees), psychology, and computer science than they did of bachelor's degrees in other science and engineering

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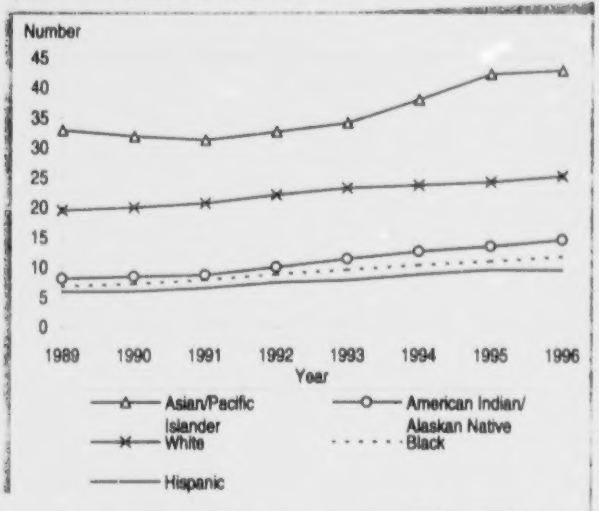
[2] The dissimilarity index is calculated as the sum of the absolute difference between the percentage of female bachelor's degree recipients earning degrees in each field and the percentage of male bachelor's degree recipients earning degrees in each field divided by 2.

Figure 2-4.

Bachelor's degrees in science and engineering per thousand 20- to 24-year-olds, by race/ethnicity of U.S. citizens and permanent residents: 1989–96



SOURCES: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System Completions Survey and U.S. Department of Commerce, Bureau of the Census, Current Population Survey.

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fields; they earned relatively lower percentages of agricultural science and engineering degrees. (See appendix tables 2-9 and 2-10.) The percentage of engineering bachelor's degrees earned by blacks rose from 3 percent in 1989 to 5 percent in 1996. The percentage of agricultural science bachelor's degrees earned by blacks remained at around 2 percent from 1989 to 1996. (See appendix tables 2-8 and 2-9.)

Asians earned higher percentages of the bachelor's degrees awarded in computer science, biological sciences (especially biochemistry and cell and molecular biology), and engineering (especially electrical engineering); they earned lower percentages of agricultural science, most social sciences, and psychology degrees. Their share of degrees in all of these fields, with the exception of the agricultural sciences, has been increasing since 1989. (See appendix table 2-9.)

Hispanics earned roughly 5 to 7 percent of bachelor's degrees in most science and engineering fields, but only 3 percent of bachelor's degrees in the agricultural sciences and 2 percent of bachelor's degrees in earth, atmospheric, and ocean sciences in 1996. They earned the highest percentage of degrees in microbiology (10 percent) and industrial engineering (10 percent). Their share of degrees in all major fields except biological sciences has been increasing since 1989. (See appendix table 2-9.)

Text table 2-3.

Percentage of all earned bachelor's degrees that are in science and engineering, by citizenship and race/ethnicity of recipient: 1989–96

Citizenship and race/ethnicity	1989	1990	1991	1992	1993	1994	1995	1996
Total, all recipients	32.8	32.6	32.2	32.8	32.9	33.4	34.0	34.4
U.S. citizens and permanent residents [1]	32.4	32.2	31.9	32.5	32.7	33.2	33.9	34.2
White, non-Hispanics	31.8	31.5	31.2	31.8	31.9	32.4	33.0	33.4
Asians/Pacific Islanders	50.9	51.1	49.3	48.6	48.4	48.3	49.1	49.2
Black, non-Hispanics	30.6	30.7	30.7	31.5	31.9	31.9	32.3	32.4
Hispanics	32.2	31.7	31.3	32.8	31.9	32.8	33.3	33.5
American Indians/Alaskan Natives	31.2	30.2	30.0	30.4	32.6	33.0	32.9	33.3
Other/unknown race/ethnicity	30.3	31.0	33.6	33.6	33.5	34.3	34.6	35.9
Nonresident aliens [2]	46.6	46.4	42.9	42.9	42.6	40.7	39.9	39.3

[1] Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

[2] Nonresident aliens include foreign citizens on temporary visas only. No racial/ethnic data are collected for this group.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

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American Indians earned between 0.4 and 0.8 percent of the bachelor's degrees awarded in the various science and engineering fields in 1996. They earned the highest percentages of degrees in the agricultural sciences (0.8 percent) and social sciences (0.7 percent). They earned the lowest percentages in mathematics, computer science, and engineering (0.4 percent of each). (See appendix table 2-9.)

A dissimilarity index was constructed to measure the amount of similarity or dissimilarity in the distributions of racial/ethnic groups by bachelor's degree field.[3] The dissimilarity index is highest for Asians—17.5 percent of Asians would have to switch their bachelor's degree field to match the field distribution of white bachelor's degree recipients—but is decreasing over time. (See appendix table 2-8.) The index is lowest for Hispanics—1.8 percent would have to switch their bachelor's degree field to match the field distribution of white bachelor's degree recipients.

Minority women

Within each racial/ethnic group in 1996, women represented a lower percentage of bachelor's degrees in science and engineering than in non-science and -engineering. In contrast to white and Asian women, however, black, Hispanic, and American Indian women earned more than half of the bachelor's degrees in science and engineering awarded to their respective racial/ethnic group in 1996. (See text table 2-4.)

Persons with disabilities

Data on participation of persons with disabilities in undergraduate and graduate education are seriously limited for several reasons:

1. Differing operational definitions of "disability" have been used; these include a wide range of physical and mental conditions. Different sets of data have used different definitions and thus are not comparable.
2. Data about disabilities are frequently not included in comprehensive institutional records. Concerns about confidentiality often inhibit collection or dissemination by institutions of data on disabilities.

Where Minorities Earn Their Degrees

Some colleges and universities educate a disproportionate share of undergraduates who are members of racial/ethnic minorities. For example, America's Historically Black Colleges and Universities (HBCUs) continue to play an important role in educating and producing black science and engineering bachelor's degree recipients. The percentage of blacks awarded bachelor's degrees in science and engineering in 1996 who earned them at HBCUs was 31 percent, up slightly from 28 percent in 1990. (See appendix table 2-11.) About two-thirds of the 25 institutions that awarded the largest number of science and engineering bachelor's degrees to black males and females were HBCUs. (See appendix table 2-12.)

Hispanics are likely to earn bachelor's degrees from colleges and universities in regions of the country where they are most concentrated: California, Texas, and Puerto Rico. (See appendix table 2-13.) Puerto Rico awarded 21 percent of the science and engineering bachelor's degrees received by Hispanics in 1990 and 15 percent in 1996. (See appendix table 2-14.)

Like Hispanics, American Indians earn bachelor's degrees from colleges and universities where their population is concentrated: California, Oklahoma, and Colorado. (See appendix table 2-15.) Almost all of the science and engineering bachelor's degrees awarded to American Indians come from non-Tribal colleges. Tribal colleges and universities (TCUs), first established in the late 1960s, are academic institutions created and chartered, for the most part, by one or more tribes (NCES 1998a). As of 1998, there were 30 TCUs which are located for the most part on Indian reservations. Only six TCUs are 4-year colleges or universities; the rest are 2-year schools. Of the six TCUs that offer bachelor's degrees, two offer bachelor's degrees in science and engineering—one offers courses of studies in social sciences, and the other in agricultural sciences. (See appendix table 2-16.) The number of American Indians being awarded both bachelor's and associate's degrees in science and engineering increased from 1990 to 1996. (See appendix tables 2-16 and 2-17.)

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[3] The dissimilarity index is calculated as the sum of the absolute difference between the percentage of degree recipients in a particular racial/ethnic group earning degrees in each field and the percentage of white degree recipients earning degrees in each field divided by 2.

Text table 2-4.

Percentage of bachelor's degrees earned by women, by field and by race/ethnicity of U.S. citizens and permanent residents: 1996

Field	Total	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Other/ unknown
Total, all fields	55.9	54.3	55.9	67.2	62.5	62.0	53.1
Total science and engineering	47.8	45.9	48.1	63.0	55.0	54.6	46.4
Engineering	18.3	16.3	21.2	36.4	22.8	21.7	15.9
Sciences	53.2	51.0	56.3	66.1	61.3	58.4	51.3
Physical sciences	36.2	33.1	42.6	57.1	44.0	26.0	28.5
Earth, atmospheric, and ocean sciences	36.2	36.0	30.6	46.0	44.1	37.0	33.9
Mathematical sciences	44.5	44.3	41.0	51.6	43.1	39.7	39.4
Computer science	27.4	22.8	31.6	47.9	34.9	35.5	25.8
Biological sciences	57.7	55.7	57.9	79.7	63.5	60.7	52.4
Agricultural sciences	44.4	43.3	60.3	66.9	57.8	46.8	41.6
Social sciences	48.2	45.5	56.9	60.7	55.9	54.8	50.8
Psychology	74.1	72.9	76.3	80.3	81.7	83.0	68.9
Non-science and -engineering	60.0	58.5	63.5	69.2	66.2	65.7	56.6

NOTE: Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

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3. The information on persons with disabilities gathered from surveys is often self-reported. Typically, respondents are asked if they have a disability and to specify what kind of disability it is. The resulting data therefore reflect individual decisions to self-identify and not objective measures.

Although the National Science Foundation (NSF) collects data on the disability status of scientists and engineers in most of its surveys and uses common definitions among its surveys, these cover people who have earned at least a bachelor's degree in science and engineering or who are employed in science and engineering. NSF does not collect data on individuals in precollege education or undergraduate education. The National Center for Education Statistics does collect data for those levels of education, but in many instances does not include measures of disability status. It has already been noted that colleges and universities do not maintain data in their central records that identify students with disabilities. Therefore, enrollment and degree data collected from colleges and universities are not reported by disability status.

Availability of Institutional Data on Students With Disabilities

To the extent that institutions maintain data on students with disabilities at all, they are only for those students who identify themselves to the institution as having a disability. The basis for identification is varied: 28 percent of the academic institutions surveyed in a recent study by the National Center for Education Statistics included students to whom services or accommodations were provided; 38 percent included students who provided verification of their disabilities, regardless of whether services or accommodations were provided; 22 percent included students who identified themselves to the disability services office or coordinator, regardless of verification or provision of services; and 12 percent included students who had been reported to the disability services office or coordinator, regardless of contact with them.

The majority of academic institutions do not maintain records of students with disabilities in their general student record system. About 70 percent of the institutions maintain records of students with disabilities in the disability support services office, and most of those maintain only paper records. About 9 percent of institutions maintain no records at all on students with disabilities. Only about one-fifth maintain records of students with disabilities in their general student record system and thus would easily be able to report data on students with disabilities through existing National Center for Education Statistics data collections, which rely on the general student record system (NCES 1999).

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CHAPTER 3

GRADUATE ENROLLMENT

Overview

Total graduate enrollment in degree-granting institutions in all disciplines increased 3.9 percent from 1992 to 1996 (NCES 1999). In contrast, graduate enrollment in science and engineering fell 2 percent from 1996 to 1997—the fourth consecutive drop since 1993. This drop in graduate enrollment is attributable to the decline in the number of white graduate students (both men and women). Although the numbers of black, Hispanic, and American Indian graduate students (both men and women) are on the rise, their increase does not counter the decline caused by dwindling numbers of white graduate students.

Transition to graduate school

Women

As of the mid-1990s, women and men pursued graduate study after the science and engineering bachelor's degree in roughly equal proportions. Among science and engineering bachelor's degree recipients in academic year 1995, 22 percent of women and 20 percent of men were enrolled full time in 1997. (See text table 3-1.)

Minorities[1]

Asian science and engineering bachelor's degree recipients are more likely to continue on to graduate school than their counterparts from all other racial/ethnic groups, including whites. Other racial/ethnic groups have comparable levels of participation in graduate study following the bachelor's degree. Among science and engineering bachelor's degree recipients in academic year 1995, 29 percent of Asians were enrolled full time in graduate school by April 1997, compared to between 20 and 21 percent of whites, blacks, Hispanics and American Indians. (See text table 3-1.)

Persons with disabilities

Persons with disabilities, who constituted 2.6 percent of the academic year 1995 bachelor's science and engineering graduates, were more likely than those without disabilities to enroll part time in graduate school. Among 1995 science and engineering bachelor's degree recipients, 16 percent of those with disabilities were part-time students in 1997 compared with 8 percent of those without disabilities. (See text table 3-1.) 1995 science and engineering bachelor's degree recipients with disabilities were also less likely to be employed—22 percent were not employed in 1997 compared to 14 percent of those without disabilities.

Enrollment trends

Women

In 1997, 55 percent of the graduate students in all fields were women (Syverson and Bagley 1999) as were 40 percent of the graduate students in science and engineering fields. The number of women enrolled in science and engineering graduate programs increased from 94,396 in 1980 to 162,029 in 1997. (See figure 3-1.) Gains were largest in the 1980s and have been more modest in recent years. From 1980 to 1997, the number of women graduate students increased in all science and engineering fields. The number of men enrolled in graduate science and engineering programs peaked in 1992 and has declined each year since.

Over the past two decades, the percentage of graduate students who are women has increased both in science and engineering as a whole and in each major science and engineering field. (See figure 3-2.) In 1980, 29 percent of science and engineering graduate students were female; this proportion had risen to 40 percent in 1997.

In some fields—engineering, computer science, and agricultural sciences—the number of female graduate students generally continues to increase. Within the last few years, however, enrollment of both women and men has

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[1] Data refer to U.S. citizens and permanent residents only.

Text table 3-1.
Enrollment, degree attainment, and employment status for the academic year 1995 science and engineering bachelor's degree recipients: April 1997

Sex, race/ethnicity, and disability status	Total Number	Enrollment status, April 1997			Degree attainment, April 1997		Employment status, April 1997		
		Full-time student	Part-time student	Not student	Attained an MA or higher by April 30, 1997	Not attained an MA or higher by April 30, 1997	Employed full-time	Employed part-time	Not employed
		Percent			Percent		Percent		
Total	353,000	21.2	8.7	70.1	2.2	97.8	73.8	11.7	14.5
Sex									
Women	172,500	22.3	9.3	68.4	1.5	98.5	69.3	13.6	17.1
Men	180,500	20.2	8.2	71.7	2.9	97.1	78.1	9.8	12.1
Race/ethnicity									
White, non-Hispanic	269,300	20.3	8.1	71.7	2.1	97.9	74.9	11.9	13.2
Asian/Pacific Islander	33,500	29.3	9.1	61.7	4.8	95.2	64.7	7.3	27.9
Black, non-Hispanic	23,200	20.9	11.1	68.1	1.2	98.8	73.3	12.4	14.3
Hispanic	24,200	20.7	12.4	66.9	1.3	98.7	73.9	14.1	12.0
American Indian/ Alaskan Native	2,900	21.5	14.6	63.9	2.6	97.4	77.6	13.5	8.9
Disability status									
Persons without disabilities	343,700	21.3	8.5	70.2	2.2	97.8	74.0	11.6	14.3
Persons with disabilities	9,300	16.9	16.0	67.1	3.6	96.4	64.9	13.5	21.5

NOTES: **Because of rounding, details may not add to totals. Percents calculated on unrounded data.**

SOURCE: National Science Foundation/Division of Science Resources Studies 1997 SESTAT Integrated Data Files.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

dropped in several fields. In the physical sciences, for example, enrollment of both sexes has been declining since the early 1990s. Because the rate of decline has been larger for men, the percentage of physical science graduate students who are women has increased. (See appendix tables 3-1 to 3-3.) For example, in 1993, 9,202 women were enrolled in graduate physical sciences programs representing 26 percent of total graduate physical sciences enrollment. In 1997, 8,851 women were enrolled in graduate physical sciences programs, but they were 28 percent of all graduate physical sciences enrollment. Similar declines in numbers, but increases in percentages, occurred in mathematics and—more recently—in the biological sciences.

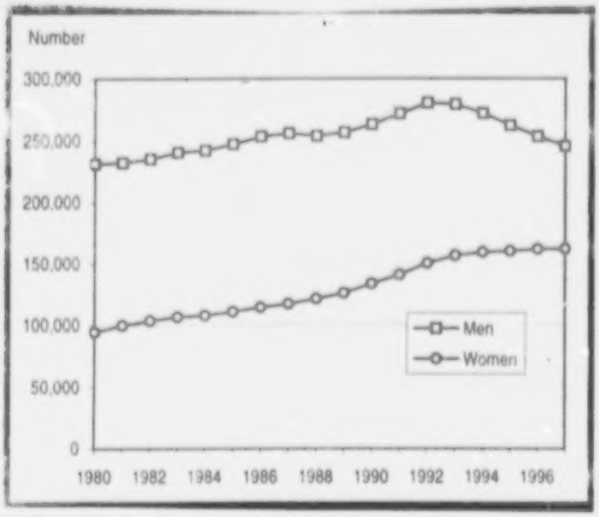
The percentage of first-year science and engineering graduate students who are women is on the rise. In 1980, 30 percent of full-time first-year science and engineering graduate students were female, compared to 41 percent in 1997. (See appendix table 3-4.) Again, most of this increase can be attributed to a decline in the number of men among first-year students since 1992. Male full-time first-year science and engineering graduate student enrollment dropped 17 percent between 1992 and 1997 (from 52,696 to 43,550), while the number of women declined only 2 percent—from 30,438 to 29,963—over the same period.

Minorities (U.S. citizens and permanent residents)

Across all disciplines, the numbers of Asian, black, and Hispanic graduate students increased between 1996 and 1997, rising by 1 percent, 4 percent, and 3 percent, respectively. The number of American Indian graduate students held steady from 1996 to 1997 (Syverson and Bagley 1999).

Figure 3-1.

Science and engineering graduate students, by sex: 1980–97



SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

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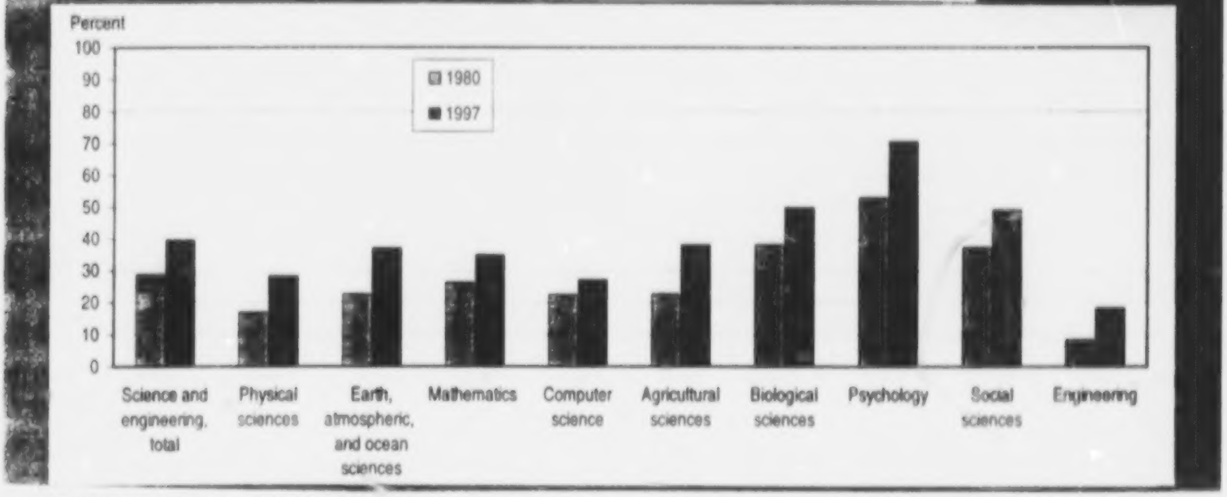
In science and engineering, the numbers of black, Hispanic, American Indian, and Asian graduate students have increased since 1982 (the first year for which data by race/ethnicity are available). (See figure 3-3.) Black science and engineering graduate students rose in number from 10,388 in 1982 to 19,363 in 1997, Hispanics from 7,724 in 1982 to 14,988 in 1997, American Indians increased from 909 in 1982 to 1,599 in 1997, and Asians from 8,170 in 1982 to 26,078 in 1997. (See appendix table 3-5.) The number of white science and engineering graduate students also increased over that time period—from 215,264 in 1982 to 227,936 in 1997. Although white graduate enrollment in science and engineering increased in absolute terms between 1982 and 1997, it dropped 11 percent over the last 4 years from a peak of 256,859 in 1993.

From 1982 to 1997, the percentage of graduate students who are black, Hispanic, American Indian, or Asian increased in science and engineering as a whole as well as in each major science and engineering field. The proportion of black science and engineering graduate students increased from 4 percent in 1982 to 6 percent in 1997, Hispanics from 3 to 5 percent, American Indians from 0.3 to 0.5 percent, and Asians from 3 to 8 percent. Concurrently, the proportion of graduate students who are white declined from 79 percent in 1982 to 74 percent in 1997.

Figure 3-2.

Women as a percentage of science and engineering graduate students, by field: 1980 and 1997

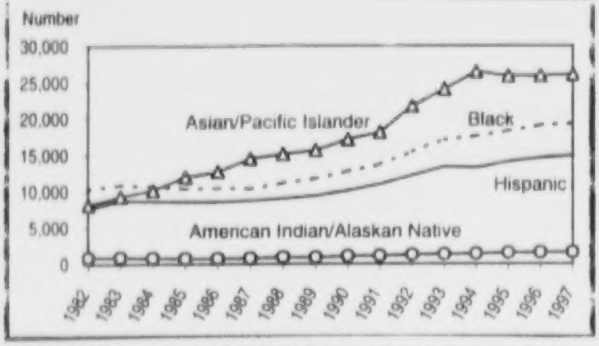


SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Figure 3-3.

U.S. citizen and permanent resident science and engineering graduate students, by race/ethnicity of minority students: 1982–97



SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

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Improved reporting of race/ethnicity, evidenced by the decline in the number of students of "unknown race/ethnicity," could account for some of the reported increase in nonwhite students. Specifically, the percentage of graduate students of unknown race/ethnicity declined from 12 percent in 1982 to 6 percent in 1997. (See appendix table 3-5.)

Data on the number of science and engineering graduate students by sex and race/ethnicity jointly are available only as far back as 1994. For the 4 years for which data are available, the numbers of black, Hispanic, and American Indian men and women enrolled as graduate science and engineering students increased. (See appendix table 3-8.) The number of Asian women also increased, while the numbers of white men, white women, and Asian men dropped. Women in each racial/ethnic group account for higher percentages of psychology graduate students and lower percentages of mathematics, computer science, and engineering graduate students than do men in their respective racial/ethnic group. (See text table 3-2.)

Text table 3-2.

Percentage of total science and engineering graduate students, by citizenship, race/ethnicity, sex and field: 1997

Field	Total	U.S. citizens and permanent residents						Temporary residents
		White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/Alaskan Native	Other/ unknown	
	Men							
Science and engineering, total	60.3	32.2	3.9	2.0	1.9	0.2	2.7	17.3
Sciences, total	53.3	30.6	3.1	2.1	1.8	0.2	2.4	13.1
Physical sciences	71.5	37.2	3.4	1.6	1.6	0.1	2.2	25.4
Earth, atmospheric, & ocean sciences	62.7	43.8	1.7	0.7	1.6	0.3	2.3	12.3
Mathematical sciences	64.9	31.8	3.7	2.1	1.5	0.2	2.6	22.9
Computer sciences	72.6	30.3	8.5	2.1	1.4	0.1	4.8	25.4
Agricultural sciences	61.6	39.3	1.4	0.9	2.0	0.3	1.6	16.1
Biological sciences	49.9	30.6	3.8	1.4	1.6	0.2	1.9	10.5
Psychology	29.2	21.3	1.0	1.7	1.6	0.2	2.0	1.4
Social sciences	50.7	30.3	1.9	3.3	2.3	0.3	2.2	10.4
Engineering	81.5	37.4	6.3	1.9	2.1	0.2	3.6	29.9
	Women							
Science and engineering, total	39.7	23.7	2.5	2.7	1.8	0.2	1.9	6.9
Sciences, total	46.7	28.8	2.8	3.3	2.2	0.2	2.3	7.2
Physical sciences	28.5	13.4	1.9	1.4	0.9	0.1	1.0	9.7
Earth, atmospheric, & ocean sciences	37.3	27.8	1.1	0.7	1.1	0.2	1.4	4.9
Mathematical sciences	35.1	18.2	2.6	1.8	1.0	0.1	1.3	10.2
Computer sciences	27.4	8.7	4.6	1.5	0.6	0.0	1.8	10.2
Agricultural sciences	38.4	26.3	1.2	1.0	1.3	0.2	1.3	7.0
Biological sciences	50.1	30.7	4.0	2.4	1.9	0.2	1.8	9.0
Psychology	70.8	51.6	2.6	5.1	4.2	0.4	4.6	2.4
Social sciences	49.3	29.9	2.1	5.2	2.7	0.3	2.3	6.7
Engineering	18.5	8.2	1.8	0.9	0.6	0.1	0.9	6.1

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Trends in Enrollment of Minorities in California and Texas

In California and Texas, changes in legislation[2] or admissions policies[3] that barred the use of race in graduate admissions decisions were passed in 1995 and 1996 (Claiborne 1997, Pressley 1997). These changes, which first went into effect for the classes admitted in fall 1997, had no apparent effect on the graduate enrollment of blacks, Hispanics, or American Indians in science and engineering programs in those states. (See appendix tables 3-6 and 3-7.) The policies would be expected to have the greatest effect in public Carnegie Research I institutions because these institutions are most likely to have selective admissions and would be subject to state laws and policies.

Figure 3-4 shows, for example, that in California's public Carnegie Research I institutions, the number of black science and engineering graduate students has remained relatively constant since 1994. The number of Hispanic students rose until 1995 and dropped only slightly in 1996 and 1997. By way of comparison, enrollment of black and Hispanic graduate students in science and engineering in non-Research I institutions (primarily the private ones) in California has been increasing since at least 1990. (See appendix table 3-6.)

All Research I institutions in Texas are public. Fewer than 4,000 graduate students were enrolled in science and engineering programs in these institutions in 1997. (See appendix table 3-7.) Of these, only 46 graduate students were black, 164 Hispanic, and 7 American Indian. The number of black graduate science and engineering students has remained relatively constant since 1992. (See figure 3-5.) The number of Hispanic students rose by 13 percent between 1996 and 1997 (following a 14 percent decrease between 1995 and 1996).

In interpreting these data, note that changes in admissions policy would be expected to affect first-year enrollment in particular. Such changes may have occurred in California and Texas but are not discernible from the data presented here, which are for total graduate enrollment only.

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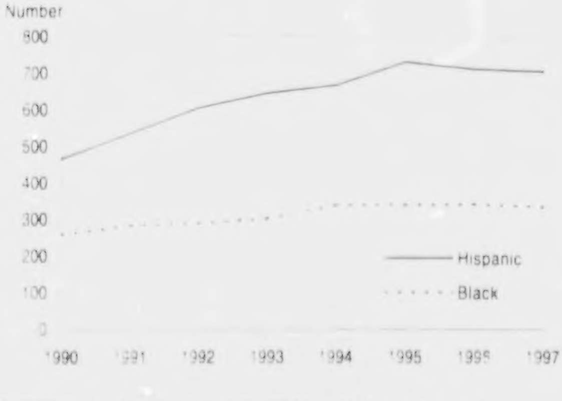
[2] Hopwood v. Texas 78 F.3d, 932 (5th Cir. 1996), cert. denied, 116 S. Ct. 2581 (1996).

[3] The Regents of the University of California Policy Ensuring Equal Treatment Admissions (SP-1), approved July 20, 1995

Figure 3-4.

Black and Hispanic graduate science and engineering students in public Research I institutions in California: 1990–97

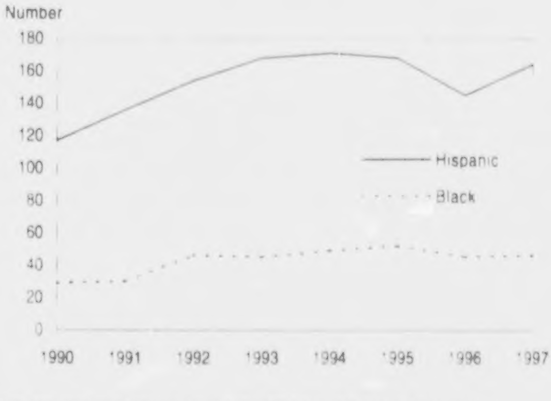


SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Figure 3-5.

Black and Hispanic graduate science and engineering students in public Research I institutions in Texas: 1990–97



SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Graduate Education at Minority-serving Institutions

Historically Black Colleges and Universities (HBCUs) play an important role in the science and engineering education of black students (Pearson 1998). Black students completing their undergraduate education at HBCUs are more likely than those from other schools to attend graduate school and to complete doctoral degrees in science and engineering (see chapter 4). HBCUs also account for a substantial share of black science and engineering graduate students, enrolling 17 percent of all black graduate students in science and engineering fields. (See appendix table 3-9.) These institutions account for higher percentages of black enrollment in some fields, notably the agricultural sciences (38 percent of all black graduate students in this field), physical sciences (30 percent), and biological sciences (27 percent) in 1997.

Unlike HBCUs, the institutions classified as Hispanic-serving Institutions (HSIs) are constantly changing. The Higher Education Act, Title III, Section 316, states that an HSI must:

- be a public or other nonprofit institution;
- provide a bachelor's degree or at least a 2-year program acceptable toward a degree;
- be accredited by an accrediting agency or association recognized by the Secretary of Education;
- have a high enrollment of needy students;
- have low average educational and general expenditures;
- have at least 25 percent Hispanic undergraduate full-time equivalent student enrollment;
- provide assurances that not less than 50 percent of its Hispanic students are low-income individuals and first-generation college students; and
- provide assurances that an additional 25 percent of its Hispanic students are low-income individuals or first-generation college students.[4]

Among the top 50 institutions enrolling Hispanic graduate students in science and engineering in 1997, 16 were designated as HSIs in 1996. (See appendix table 3-10.) A majority of the top 50 are in Puerto Rico, Florida, Texas, and California. Puerto Rican institutions enroll 12 percent of all Hispanic graduate science and engineering students, 21 percent of all Hispanic graduate students in the physical sciences, and 28 percent of all Hispanic graduate students in agricultural sciences. (See appendix table 3-11.)

Few Tribal Colleges and Universities offer graduate programs; none had graduate students in science and engineering in 1997.

Top 10 Institutions Enrolling Asian, Black, Hispanic, and American Indian Graduate Students in Science and Engineering

The top institutions enrolling minority graduate students in science and engineering reflect the regional demographics of minority populations. Five of the top institutions enrolling Asian graduate students are in California. The top institutions enrolling Hispanic graduate students are in Puerto Rico, California, Texas, and Florida—all states with high concentrations of Hispanics in their population. Of the top 10 institutions with the largest numbers of black graduate students, 6 are Historically Black Colleges and Universities and all but 2 are located in the South. Five of the top institutions enrolling American Indians are in Oklahoma or California, states with high concentrations of American Indians in their population. (See text table 3-3.)

Persons with disabilities

Data are not available on trends in graduate enrollment for students with disabilities. The reason for this is that the National Science Foundation's Survey of Graduate Students and Postdoctorates in Science and Engineering does not collect data on students with disabilities. Moreover, data on disabilities do not tend to be included in comprehensive institutional records; and, if they are, such information is likely to be kept confidential as a means of providing special services to students.

The National Center for Education Statistics through its National Postsecondary Student Aid Study collects data on disability status from a sample of graduate students.[5] Data from the most recent survey reveals that about 3 percent

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[4] The Higher Education Act of 1965, Title III, Section 316 (PL 89-329), as amended and 20 U.S.C. 1059c.

[5] The survey defines students with disabilities as those who reported having one or more of the following conditions: a specific learning disability, a visual handicap, hard of hearing, deafness, a speech disability, an orthopedic handicap, or a health impairment.

Text table 3-3.

The top 10 universities enrolling Asian, black, Hispanic, and American Indian graduate students in science and engineering: 1993–97, ranked by number of graduate students in 1997

Academic institution	1993	1994	1995	1996	1997
Asian/Pacific Islander					
University of California, Los Angeles	619	755	800	703	614
Stanford University	501	511	562	606	577
University of Houston	577	479	447	487	553
University of California at Berkeley	423	493	538	547	523
University of Southern California	630	535	495	532	522
San Jose State University	730	757	650	446	441
University of Hawaii at Manoa	329	299	311	350	390
George Mason University	267	300	328	338	372
Massachusetts Institute of Technology	320	347	351	383	367
Rutgers, the State University of New Jersey	282	281	291	225	339
Black					
Howard University	444	491	477	507	524
Southern University A & M, All Campuses	172	221	292	334	323
North Carolina Central University	95	90	105	257	320
Clark Atlanta University	275	321	297	297	285
Chicago State University	351	260	299	268	259
Jackson State University	217	225	223	238	232
University of Michigan	237	219	222	244	232
Georgia Institute of Technology	258	260	228	216	230
North Carolina A&T State University	146	218	244	251	230
Louisiana State University	152	179	190	220	222
Hispanic					
University of Puerto Rico, Rio Piedras Campus	1093	850	811	798	848
University of Puerto Rico, Mayaguez Campus	345	332	400	519	517
Florida International University	248	309	332	321	349
Caribbean Center for Advanced Studies	178	202	324	320	319
University of Texas at El Paso	166	172	191	230	212
Texas A&M University	190	182	190	223	202
California State University at Los Angeles	131	149	168	195	196
University of California, Los Angeles	140	191	196	182	186
University of California at Berkeley	198	192	179	188	181
Texas A&M University-Kingsville	125	127	132	131	177
American Indian/Alaskan Native					
Oklahoma State University	25	33	45	48	51
University of Oklahoma	45	40	51	54	47
University of California at Davis	7	4	14	17	32
Northern Arizona University	26	27	24	28	29
University of Washington	18	19	25	28	28
University of California, Los Angeles	16	24	25	25	26
University of Colorado	25	17	17	30	26
University of Kansas	9	10	8	28	26
University of New Mexico	18	16	19	20	26
University of California at Berkeley	16	23	24	22	24

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

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of graduate students studying in all fields—science and engineering as well as non-science and -engineering—reported a disability in 1996. (See appendix table 3-12.)

Students with disabilities are about as likely to be enrolled full time as those without disabilities. In 1996, 34 percent of students with disabilities and 32 percent of those without were enrolled full time in graduate and first-professional programs.[6] (See appendix table 3-12.)

Field choices

Women

Women accounted for roughly half or more than half of all graduate students in some science fields: in 1997, for example, 71 percent of the graduate students in psychology were women, as were 50 percent in the biological sciences, and 49 percent in the social sciences. (See figure 3-2.) Between 27 percent and 38 percent of the graduate students in most other science fields—physical sciences; earth, atmospheric, and ocean sciences; mathematical sciences; computer sciences; and agricultural sciences—were female. In contrast, however, fewer than 20 percent of the graduate students in engineering were women.

Minorities

The field distributions of science and engineering graduate students for the various racial/ethnic groups are quite different. Larger percentages of black, Hispanic, and American Indian students, as well as of white students, were in the social and behavioral sciences compared to Asian students in 1997. More specifically, half or more of black, Hispanic, and American Indian students and 40 percent of white students were in psychology or the social sciences compared with 20 percent of Asian students. On the other hand, larger percentages of Asian graduate students than of other groups were in engineering and computer science. (See text table 3-4.)

Persons with disabilities

There are substantial variations in graduate field choice based on disability status. Smaller percentages of graduate students with disabilities than of those without disabilities were in the life and physical sciences and in engineering, computer science, and mathematics in 1996. Roughly the same proportions of graduate students with and without disabilities were in the social and behavioral sciences and in many non-science and -engineering fields. On the other hand, a much higher percentage of students with disabilities than of those without disabilities were enrolled in graduate health programs. (See figure 3-6 and appendix table 3-13.)

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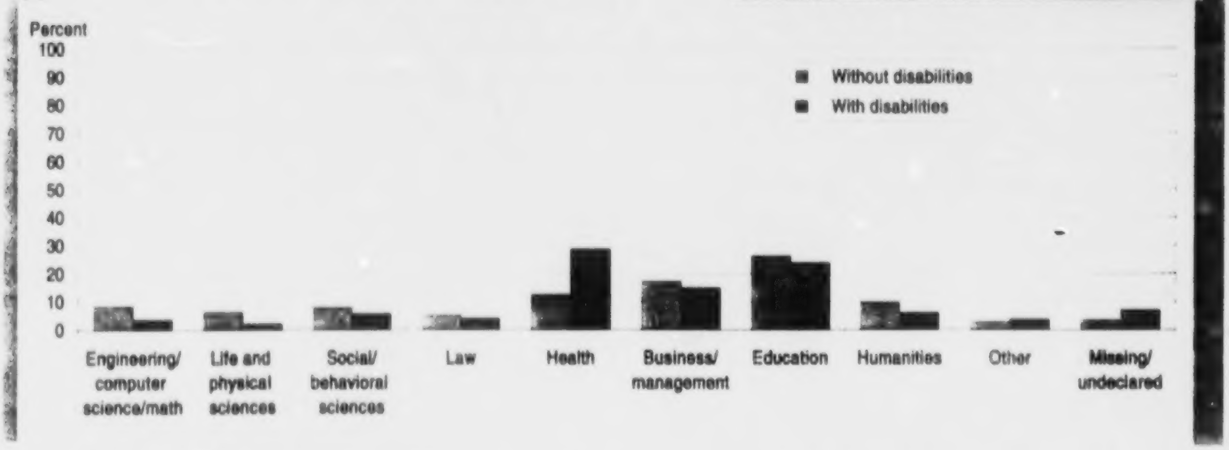
[6] First-professional programs include those in chiropractic medicine, medicine, dentistry, optometry, osteopathic medicine, pharmacy, podiatry, and veterinary medicine.

Text table 3-4.
Percentage distribution among fields of science and engineering graduate students, by citizenship and race/ethnicity: 1997

	Science and engineering field									
Citizenship and race/ethnicity	S&E total	Physical sciences	Earth, atmospheric, and ocean sciences	Mathematics	Computer science	Agricultural sciences	Biological sciences	Psychology	Social sciences	Engineering
Total	100.0	7.6	3.6	4.1	8.8	2.9	14.0	13.0	21.1	24.8
Temporary residents	100.0	11.0	2.5	5.6	13.0	2.8	11.3	2.0	14.9	36.9
U.S. citizens and permanent residents	100.0	6.5	3.9	3.6	7.5	2.9	14.9	16.6	23.1	20.9
White, non-Hispanic	100.0	6.9	4.6	3.7	6.2	3.4	15.4	17.0	22.7	20.2
Asian/Pacific Islander	100.0	6.3	1.6	4.0	18.0	1.2	17.2	7.3	13.2	31.3
Black, non-Hispanic	100.0	4.9	1.1	3.4	6.7	1.2	11.2	18.8	37.9	14.8
Hispanic	100.0	5.2	2.7	2.8	4.8	2.7	13.2	20.6	29.1	18.8
American Indian/Alaskan Native	100.0	4.4	5.1	2.7	3.8	3.9	12.4	21.3	31.6	14.9
Other/unknown race/ethnicity	100.0	5.3	2.8	3.4	12.5	1.8	11.1	18.4	20.7	23.8

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Figure 3-6.
Field distribution of graduate students, by disability status: 1996



SOURCE: U.S. Department of Education, National Center for Education Statistics. 1995–96 National Postsecondary Student Aid Study, data analysis system.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Enrollment status

Women

Regarding enrollment status (full- versus part-time enrollment), the proportions of men and women are about equal. In 1997, 68 percent of female and 72 percent of male graduate students in the sciences were enrolled full time. In engineering, 67 percent of women and 65 percent of men were enrolled full time. (See appendix table 3-14.)

Minorities

There is little variation by racial/ethnic group in full- versus part-time science and engineering graduate enrollment of U.S. citizens and permanent residents. Roughly 60 percent to 65 percent of each racial/ethnic group were enrolled full time; the single exception to this was American Indian students, 70 percent of whom were enrolled full time. (See appendix table 3-15.)

Persons with disabilities

Students with disabilities[7] are about equally likely to be enrolled full time in all fields as those without disabilities. In 1996, 34 percent of students with disabilities and 32 percent of those without disabilities were enrolled full time in graduate and first-professional[8] programs in 1996. (See appendix table 3-12.)

Sources of financial support

Women

Among full-time graduate students in engineering in 1997, the primary sources of financial support for men and women were similar: 25 percent of men and 27 percent of women relied primarily on self support, 36 percent of men and 37 percent of women relied primarily on institutional support, and 24 percent of men and 23 percent of women relied primarily on Federal support. (See appendix table 3-16.)

In the sciences, institutional support was the primary source of support for 45 percent of men and 43 percent of women who were enrolled full time. Female graduate students in the sciences were more likely than males to be self-supported (35 percent versus 26 percent), but within science fields the differences are generally smaller. Similarly, female full-time graduate students were less likely than males to have Federal support (16 percent versus 21 percent) in the sciences as a whole, but within science fields the differences are generally smaller. In each major science field, however, a lower percentage of female full-time graduate students than male had Federal support.

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[7] The source (U.S. Department of Education, National Center for Education Statistics, 1995-96 National Postsecondary Student Aid Study) defines students with disabilities as those who reported that they had one or more of the following conditions: a specific learning disability, a visual handicap, hard of hearing, deafness, a speech disability, an orthopedic handicap, or a health impairment.

[8] Includes chiropractic medicine, medicine, dentistry, optometry, osteopathic medicine, pharmacy, podiatry, and veterinary medicine.

Minorities

Among U.S. citizen and permanent resident science and engineering graduate students enrolled full time for the full year, a smaller proportion of Asians (21 percent) received loans than of whites (36 percent) or of underrepresented minorities[9] (43 percent). On the other hand, larger percentages of Asians than of other groups received research assistantships and teaching assistantships. (See appendix table 3-17.) A larger share of underrepresented minorities than of whites or Asians received grants. These differences may be due at least in part to variations in field as well as eligibility for various types of aid. For example, Asians who entered graduate school as students on temporary visas may not have been eligible for many Federal loan programs.

Persons with disabilities

Although the National Center for Education Statistics collects data through its National Postsecondary Student Aid Study on disability status from a sample of graduate students and provides information on field and enrollment status, the number of students with disabilities in the sample is too small to generate reliable data on financial support for those in science and engineering programs.

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[9] Underrepresented minority categories are American Indian; black, non-Hispanic; and Hispanic.

CHAPTER 4

GRADUATE DEGREES

Overview

Trends in attainment of master's and doctoral degrees follow the same pattern seen with bachelor's degrees and graduate enrollment: That is, both the numbers and percentages of women and minorities earning master's degrees and doctorates in science and engineering have increased over time. Detailed data on science and engineering graduate degrees earned by women are available from 1966 to 1996 for master's degrees and from 1966 to 1997 for doctorates. For racial/ethnic groups, comparable annual data are only available as far back as 1989 for master's degrees and 1975 for doctorates.[1]

Master's degrees

The number of master's degrees awarded in science and engineering between 1966 and 1996 more than doubled, increasing from 41,049 to 95,313, but account for a lower percentage of all master's degrees. (See appendix table 4-1.) Science and engineering degrees accounted for 23 percent of all master's degrees awarded in 1996, compared with 29 percent in 1966.

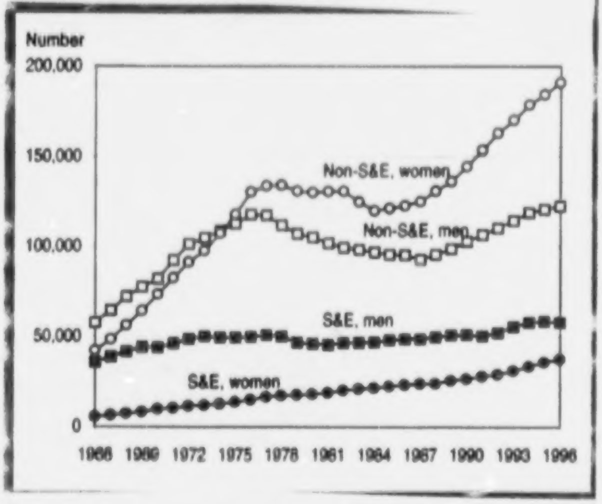
Women

In science and engineering fields, both the number of women earning master's degrees and their proportion of the total have risen steadily over the past 30 years. In 1966, women earned 5,469 or 13 percent of the science and engineering master's degrees awarded. (See appendix table 4-2.) By 1996, they earned 37,453, or 39 percent. In contrast, the numbers of master's degrees earned by men in science and engineering remained relatively constant from the early 1970s through the early 1990s at around 50,000 degrees per year; this figure has risen only slightly since then. (See figure 4-1.)

Women earn a smaller percentage of master's degrees than of bachelor's degrees awarded in science and engineering. In 1996, when women earned 39 percent of the master's degrees awarded in science and engineering, they also received 47 percent of the bachelor's degrees in science and engineering. (See appendix tables 2-6 and 4-3.) By contrast, in non-science and -engineering fields,

Figure 4-1.

Master's degrees awarded in science and engineering (S&E) fields and in non-S&E fields, by sex: 1966–96



SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

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[1] Data on the race/ethnicity of bachelor's and master's degree recipients were collected biennially by the National Center for Education Statistics from 1977 to 1989 and annually thereafter. The data were collected only at the broad field level until 1995. Because of changes in field taxonomy in 1985, data on bachelor's and master's degrees by race/ethnicity and field from 1985 on are not comparable to earlier data. Data on the race/ethnicity of doctoral degree recipients were first collected in the Survey of Earned Doctorates in 1973. Data for 1973 and 1974 are excluded from this report because they included a large number of doctorate recipients of "unknown" race/ethnicity.

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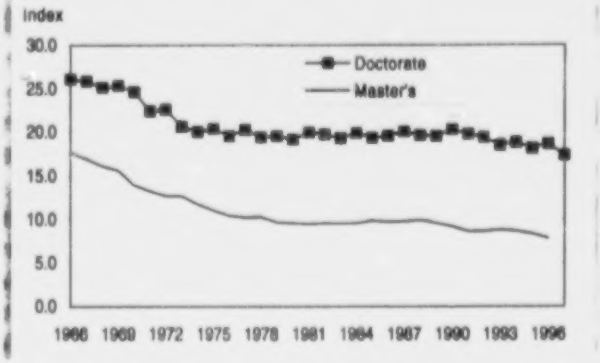
women earn about the same percentage of master's degrees as they do of bachelor's degrees: Women received 59 percent of the bachelor's degrees and 61 percent of the master's degrees awarded in non-science and -engineering fields in 1996. (See appendix tables 2-6 and 4-3.)

By field, women earned the highest percentage of science and engineering master's degrees in psychology (72 percent), the social sciences (50 percent), and the biological/agricultural sciences (49 percent); they received their lowest percentage of master's degrees in engineering (17 percent). (See appendix table 4-3.) Although the number and percentage of master's degrees awarded to women in many of these fields have been increasing, this is not the case in the fields of mathematics and computer science, where their share of total master's awards has changed little since the late 1980s.

A dissimilarity index was constructed to measure the amount of similarity or dissimilarity in the distributions of men and women by master's degree field.[2] An examination of trends in the dissimilarity index shows that the master's degree field distributions of men and women have become more similar over the past 30 years. In 1966, the dissimilarity index was 17.7, indicating that 17.7 percent of women would have to switch their master's degree field to match the distribution of fields of male master's degree recipients. (See appendix table 4-2.) By 1996, the dissimilarity index was 7.8. (See figure 4-2.)

Figure 4-2.

Index of dissimilarity of field of master's and doctoral degrees in science and engineering, by sex: 1966–97



NOTE: The dissimilarity index is a measure of the percentage of female degree recipients who would need to switch fields of study to match the percentage distribution of male degree recipients. The index is calculated as the sum of the absolute difference between the percentage of female degree recipients earning degrees in each field and the percentage of male degree recipients earning degrees in each field divided by 2.

SOURCES: Tabulations by National Science Foundation/Division of Science Resources Studies: data on master's degrees from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey. Data on doctorate degrees from National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

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Minorities (U.S. citizens and permanent residents only)

In 1996, 360,682 master's degrees were awarded to U.S. citizens and permanent residents, 68,151—19 percent—of them in science and engineering. (See appendix tables 4-4 and 4-5.) More than one-third of all master's degrees awarded to Asians were in science and engineering in 1996. In contrast, 14 percent of all master's degrees awarded to blacks and 18 percent of all master's degrees awarded to whites, Hispanics, and American Indians were in science and engineering. (See text table 4-1.)

A dissimilarity index was constructed to measure the amount of similarity or dissimilarity in the distributions of racial/ethnic groups by master's degree field.[3] The index is highest for Asians—18.8 percent of Asians would have to switch their master's degree field to match the field distribution of their white counterparts. (See appendix table 4-4.) The index is lowest for Hispanics—1.5 percent would have to switch their master's degree field to match

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[2] The dissimilarity index is a measure of the percentage of women master's degree recipients who would need to switch fields of study to match the field distribution of men students receiving master's degrees. The index is calculated as the sum of the absolute difference between the percentages of male and female degree recipients in each field divided by 2. The fields used in the calculation are engineering; physical sciences; earth, atmospheric, and ocean sciences; mathematics; computer science; biological/agricultural sciences; psychology; social sciences; and non-science and -engineering.

[3] This dissimilarity index is a measure of the percentage of master's degree recipients in a racial/ethnic group who would need to switch fields of study to match the field distribution of white students receiving master's degrees. The index is calculated as the sum of the absolute difference between the percentage of master's degree recipients in a particular racial/ethnic group earning master's degrees in each field and the percentage of their white counterparts earning master's degrees in each field divided by 2. The fields used in the calculation are engineering; physical sciences; earth, atmospheric, and ocean sciences; mathematics; computer science; biological/agricultural sciences; psychology; social sciences; and non-science and -engineering.

Text table 4-1.

Percentage of all earned master's degrees that are in science and engineering, by citizenship and race/ethnicity of recipient: 1989 and 1996

Citizenship and race/ethnicity	1989	1996
Total, all recipients	22.6	21.7
U.S. citizens and permanent residents [1]	19.8	18.9
White, non-Hispanic	19.1	18.3
Asian/Pacific Islander	40.3	34.4
Black, non-Hispanic	12.3	14.3
Hispanic	19.5	17.7
American Indian/Alaskan Native	19.3	18.0
Unknown race/ethnicity	23.5	20.3
Nonresident aliens [2]	47.1	42.7

[1] Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

[2] Nonresident aliens include foreign citizens on temporary visas only. No racial/ethnic data are collected for this group.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

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the field distribution of white master's degree recipients. The dissimilarity index was 2.9 for American Indian and 4.3 for black master's degree recipients.

The number of master's degrees in science and engineering awarded to all racial/ethnic groups increased in the 1990s. These gains occurred in degrees earned by both men and women. The percentages of master's degrees earned by Asians, blacks, and Hispanics increased from 1989 to 1996. (See figure 4-3.)

Asians

Asians earned 5,942 master's degrees in science and engineering in 1996, up from 4,100 in 1989. By 1996, Asians accounted for 9 percent of all science and engineering master's degrees awarded, up from 7 percent in 1989. (See appendix table 4-6.) In contrast, they earned 4 percent of the master's degrees awarded in 1996 in non-science and -engineering fields.

Asians earned an increasing percentage of the master's degrees in each major science and engineering field during this time period. In 1996—as has been the case since 1989—the two fields in which Asians earned the largest proportions of science and engineering master's degrees were computer science and engineering.

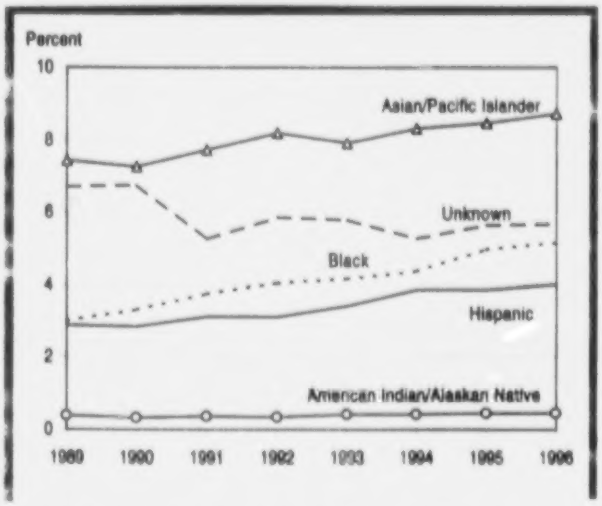
Blacks

Blacks earned 3,518 science and engineering master's degrees in 1996 (5 percent of the total), up from 1,652 (3 percent) in 1989. (See appendix tables 4-4 and 4-6.) They earned 7 percent of the master's degrees in non-science and -engineering fields.

The percentage of master's degrees earned by blacks in each of the major science and engineering fields increased between 1989 and 1996, with the numbers of master's degrees earned by blacks in some fields more than doubling over the 7-year period. Thus, in mathematics, master's degrees awarded to blacks rose from 59 to 151; in the agricultural sciences, from 36 to 88; in the social sciences, from 407 to 965; and in psychology, from 395 to 947. Two fields—the social sciences and psychology—accounted for 54 percent of the science and engineering master's degrees earned by blacks. In comparison,

Figure 4-3.

Percentage of master's degrees in science and engineering earned by minority groups, by race/ethnicity of U.S. citizens and permanent residents: 1989–96



SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System Completions Survey.

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40 percent of the science and engineering master's degrees earned by all U.S. citizens and permanent residents were in these fields.

Hispanics

Trends in master's degrees earned by Hispanics were similar to those for blacks. Hispanics earned 2,730 science and engineering master's degrees in 1996, 4 percent of the total earned by all U.S. citizens and permanent residents. (See appendix tables 4-4 and 4-6.) This was an increase from the 1,585 master's degrees (3 percent) earned by Hispanics in 1989. Hispanics earned 4 percent of the master's degrees awarded in non-science and -engineering fields in 1996.

The percentage of master's degrees earned by Hispanics in each of the major science and engineering fields increased between 1989 and 1996. As with blacks, the numbers of master's degrees earned by Hispanics more than doubled in some fields over the 7-year period. In mathematics, the number of master's degrees earned by Hispanics rose from 34 in 1989 to 91 in 1996; in psychology, the increase was from 360 to 709.

American Indians

American Indians earned 304 master's degrees in science and engineering in 1996; this figure was up from 209 in 1989. (See appendix tables 4-4 and 4-6.) The overall percentage of science and engineering master's degrees earned by American Indians was unchanged, however, remaining at 0.4 percent. American Indians earned 0.5 percent of non-science and -engineering master's degrees in 1996.

The largest numbers of science and engineering degrees earned by American Indians were in the social sciences (97) and psychology (80). More than half (58 percent) of the science and engineering master's degrees earned by American Indians in 1996 were in these two fields, compared with 40 percent of the science and engineering master's degrees earned by all U.S. citizens and permanent residents.

Minority women (U.S. citizens and permanent residents only)

The numbers of master's degrees in science and engineering awarded to women and to men in each racial/ethnic group increased during the 1989–96 period. (See appendix tables 4-7 and 4-8.) The increases during this time occurred in most major science and engineering fields, with the exceptions of computer science and the physical sciences. The numbers of master's degrees in computer science dropped for white men and women and for American Indian men, stayed the same for American Indian women, and increased for all other groups. The numbers of master's degrees in the physical sciences rose for women of all racial/ethnic groups, but dropped for all men except for blacks and Hispanics.

Women earned 41 percent of the master's degrees awarded in science and engineering to U.S. citizens and permanent residents in 1996. Blacks were the only racial/ethnic group in which women earned more than half of the master's degrees in science and engineering. Black women earned 56 percent of the master's degrees in science and engineering to blacks in 1996. (See figure 4-4.)

Persons with disabilities

Data on master's degree awards to persons with disabilities are not collected by the Federal Government. The National Science Foundation does not collect data on master's degrees; the National Center for Education Statistics does collect data on the number of master's degrees but not by measures of disability status. As noted in the previous chapter, data on disabilities are frequently not included in comprehensive institutional records. Therefore, enrollment and degree data collected from colleges and universities are not reported by disability status.

Doctorates

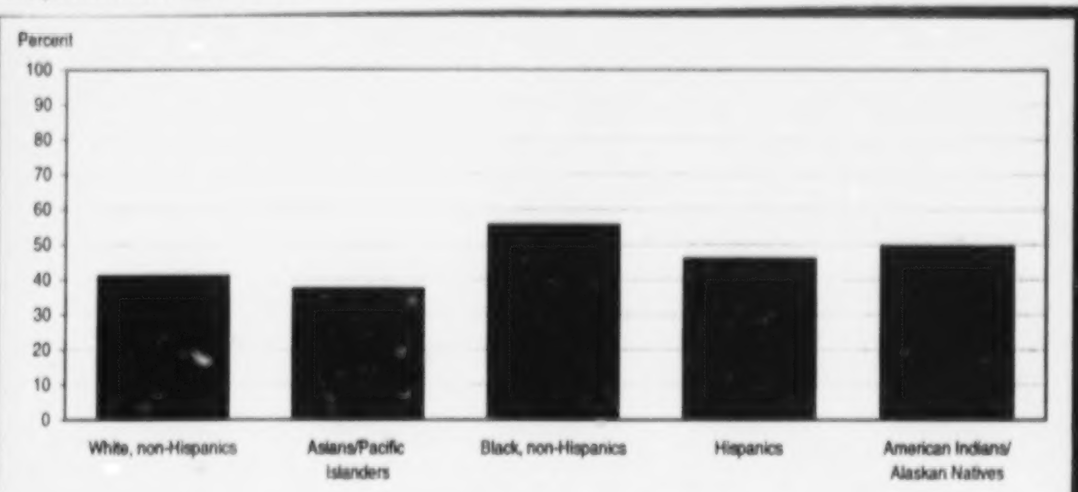
Awards in science and engineering accounted for 63 percent of all doctoral degrees in 1997. The number of doctoral degrees in science and engineering more than doubled between 1966 and 1997, rising from 11,570 to 26,847. (See appendix table 4-9.) Science and engineering doctorates rose sharply in the 1960s, stabilized in the 1970s, and rose again in the 1980s and early 1990s. In 1997, the number of science and engineering doctorates dropped for the first time since 1980.

Women

In science and engineering fields, both the number of women earning doctoral degrees and their percentage of the total have risen steadily over the years. In 1966, women earned 924 or 8 percent of all science and engineering doctoral degrees awarded. (See appendix tables 4-10 and 4-11.) By 1997, they earned 8,796, or 33 percent. Men, on the other hand, accounted for all of the decline in the number of doctorates in the 1970s and for the decrease between 1996 and 1997. (See figure 4-5.)

Figure 4-4.

Percentage of master's degrees in science and engineering earned by women, by race/ethnicity of U.S. citizens and permanent residents: 1996

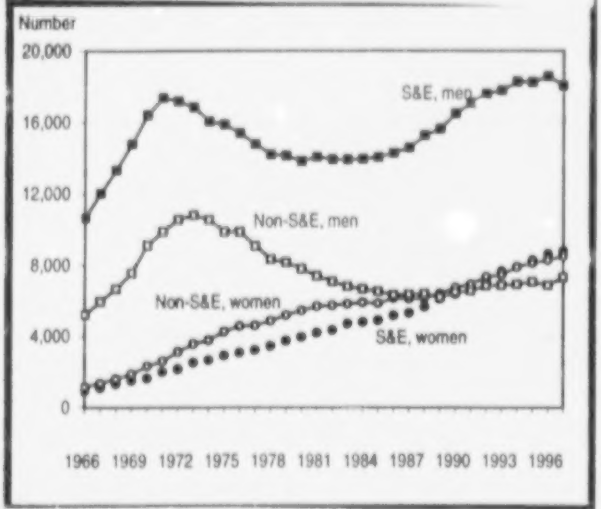


SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Figure 4-5.

Doctoral degrees awarded in science and engineering (S&E) fields and in non-S&E fields, by sex: 1966–97



SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

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Women earn a smaller percentage of the doctoral degrees in science and engineering than they do of the doctoral degrees in other fields. In 1997, women earned 8,526 or 54 percent of the doctorates awarded in non-science and -engineering fields. (See appendix tables 4-10 and 4-11.)

By broad science and engineering field, women earned the highest percentage of doctoral degrees in psychology (67 percent), the biological/agricultural sciences (41 percent), and the social sciences (39 percent); they earned the lowest percentage of their doctoral degrees in engineering (12 percent) in 1997.[4] (See appendix table 4-11.)

Reductions in the doctorate field dissimilarity index over time indicate that the field distributions of male and female doctorate recipients are becoming more similar.[5] In 1966, the dissimilarity index was 26.1, indicating that 26.1 percent of women would have to switch their Ph.D. field to match the field distribution for male Ph.D. recipients. By 1996, the dissimilarity index was 17.4. (See appendix table 4-10 and figure 4-2.)

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[4] See http://www.nsf.gov/sbe/srs/sengdr/start.htm for data on doctoral degrees by finer field and for the most recent data on doctoral degrees.

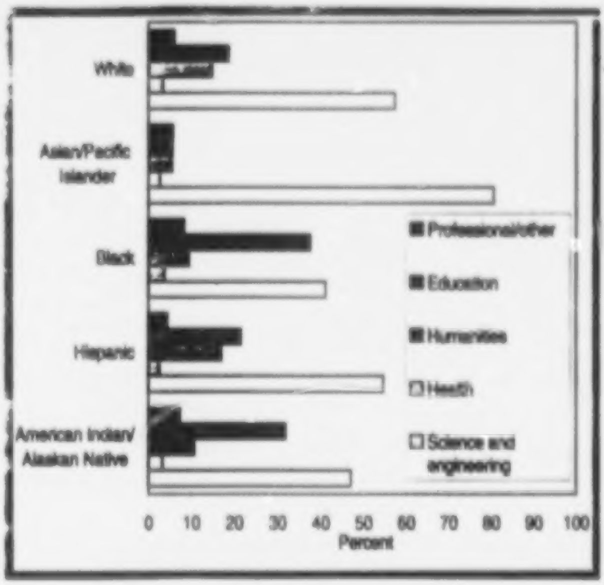
Baccalaureate-origin Institutions for Female Recipients of Science and Engineering Doctorates

About two-thirds of all science and engineering doctorate recipients earned their baccalaureates at research universities (NSF 1996). Women, though, were less likely than men to have earned their baccalaureate degrees at research universities and more likely to have earned them at baccalaureate colleges. Notably, 5 of the top 50 baccalaureate-origin institutions for women were liberal arts colleges; 4 of the 5 were women's colleges. (See text table 4-2.)

Minorities (U.S. citizens and permanent residents only)

More than half (59 percent) of all doctorates awarded to U.S. citizens and permanent residents were earned in science and engineering fields in 1997. (See appendix table 4-12.) For two groups—blacks and American Indians—more than half of the doctorates earned in 1997 were in non-science and -engineering fields, primarily education. Specifically, 37 percent of the doctorates earned by blacks and 32 percent of those earned by American Indians were in education, compared with 18 percent earned by all U.S. citizens and permanent residents. (See figure 4-6.) In contrast, 80 percent of the doctorates earned by Asians were in science and engineering, and only 6 percent were in education in 1997.

Figure 4-6.
Percentage of doctoral degrees awarded in science and engineering (S&E) and in non-S&E fields, by race/ethnicity: 1997



SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

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A dissimilarity index was constructed to measure the amount of similarity or dissimilarity in the distributions of racial/ethnic groups by field of doctorate.[6] The dissimilarity index is highest for Asians: 31.3 percent of Asians would have to switch their doctoral field to match the distribution of white Ph.D. recipients. The index is lowest for Hispanics, 7.1 percent of whom would have to switch their field of doctorate to match the distribution for white Ph.D. recipients. The dissimilarity index was 17.4 for black and 13.7 for American Indian Ph.D. recipients. The indices were smaller in 1997 than in 1975 for all nonwhite racial/ethnic groups.

U.S. citizens and permanent residents earned 18,005 doctorates in science and engineering in 1997. Of these, 76 percent were earned by whites, 14 percent by Asians, 4 percent by Hispanics, 3 percent by blacks, and 0.4 percent by American Indians.[7] (See appendix table 4-13.) The number of doctoral degrees in science and engineering awarded to Asians, blacks, Hispanics, and American Indians rose between 1975 and 1997. (See appendix table 4-12 and figure 4-7.) For blacks, much of this growth

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[5] The dissimilarity index is a measure of the percentage of female doctorate recipients who would need to switch fields of study to match the field distribution of male doctorate recipients. The index is calculated as the sum of the absolute difference between the percentage of women doctorate recipients earning degrees in each field and the percentage of men doctorate recipients earning degrees in each field divided by 2. The fields used in the calculation are engineering; physical sciences; earth, atmospheric, and ocean sciences; mathematics; computer science; biological/agricultural sciences; psychology; social sciences; and non-science and -engineering.

[6] The dissimilarity index is a measure of the percentage of doctorate recipients in a racial/ethnic group who would need to switch fields of study to match the field distribution of white recipients of doctoral degrees. The index is calculated as the sum of the absolute difference between the percentage of degree recipients in a particular racial/ethnic group earning doctorates in each field and the percentage of white doctoral recipients earning degrees in each field divided by 2. The fields used in the calculation are engineering; physical sciences; earth, atmospheric, and ocean sciences; mathematics; computer science; biological/agricultural sciences; psychology; social sciences; and non-science and -engineering.

[7] An additional 3 percent were earned by people of unknown race/ethnicity.

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Text table 4-2.
Top 50 institutions that were baccalaureate origins of men and women 1997 science and engineering doctorate recipients

Rank	Men		Women	
	Academic institutions	Number of doctorates	Academic institutions	Number of doctorates
	Total of all academic institutions	18,061	Total of all academic institutions	8,796
1	University of California-Berkeley	217	University of California-Berkeley	109
2	University of Illinois at Urbana-Champaign	168	University of Michigan at Ann Arbor	86
3	Massachusetts Institute of Technology	143	University of Illinois at Urbana-Champaign	63
4	Pennsylvania State University, Main Campus	136	University of California-Los Angeles	60
5	University of Wisconsin-Madison	119	Harvard University	59
6	University of Michigan at Ann Arbor	112	University of Wisconsin-Madison	59
7	University of Texas at Austin	106	University of California-Davis	58
8	University of California-Davis	93	Massachusetts Institute of Technology	57
9	Brigham Young University, Main Campus	93	University of Minnesota-Twin Cities	56
10	Purdue University, Main Campus	92	University of Texas at Austin	54
11	Stanford University	91	Duke University	53
12	University of California-Los Angeles	89	Pennsylvania State University, Main Campus	53
13	Harvard University	89	Stanford University	51
14	Princeton University	86	Brown University	50
15	Virginia Polytechnic Institute and State University	86	Yale University	49
16	University of Minnesota-Twin Cities	84	University of North Carolina at Chapel Hill	46
17	Ohio State University, Main Campus	84	University of Virginia, Main Campus	46
18	Texas A&M University Main Campus	84	University of Pennsylvania	45
19	University of Washington-Seattle	79	Rutgers the State University of New Jersey New Brunswick	45
20	California Institute of Technology	74	Texas A&M University Main Campus	45
21	University of California-San Diego	73	Ohio State University, Main Campus	43
22	University of Florida	73	Michigan State University	42
23	University of Colorado at Boulder	71	University of California-Irvine	40
24	Michigan State University	71	University of Chicago	39
25	Rutgers, the State University of New Jersey, New Brunswick	68	University of California-Santa Cruz	38
26	University of Arizona	66	Northwestern University	38
27	University of Chicago	61	Purdue University, Main Campus	37
28	Iowa State University	61	University of Florida	36
29	University of Virginia, Main Campus	61	University of Washington-Seattle	36
30	Georgia Institute of Technology, Main Campus	60	Wellesley College	34
31	University of Maryland at College Park	60	Princeton University	34
32	Rensselaer Polytechnic Institute	60	University of California-San Diego	32
33	University of Massachusetts at Amherst	59	University of Colorado at Boulder	32
34	State University of New York at Buffalo	57	University of Iowa	32
35	Duke University	57	Indiana University at Bloomington	30
36	University of Pennsylvania	57	Smith College	30
37	North Carolina State University at Raleigh	55	Bryn Mawr College	30
38	Brown University	55	University of Arizona	27
39	Yale University	53	University of Massachusetts at Amherst	27
40	University of Notre Dame	51	Miami University, All Campuses	27
41	University of California-Santa Barbara	50	Virginia Polytechnic Institute and State University	26
42	University of California-Irvine	47	Johns Hopkins University	25
43	Northwestern University	47	University of California-Santa Barbara	24
44	Washington University	46	Emory University	24
45	Carnegie Mellon University	46	Iowa State University	24
46	University of California-Santa Cruz	45	New York University	24
47	University of Rochester	45	University of Puerto Rico Mayaguez Campus	24
48	Johns Hopkins University	44	Mount Holyoke College	23
49	University of Tennessee at Knoxville	44	State University of New York at Buffalo	23
50	Indiana University at Bloomington	43	Swarthmore College	23
			College of William and Mary	23

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

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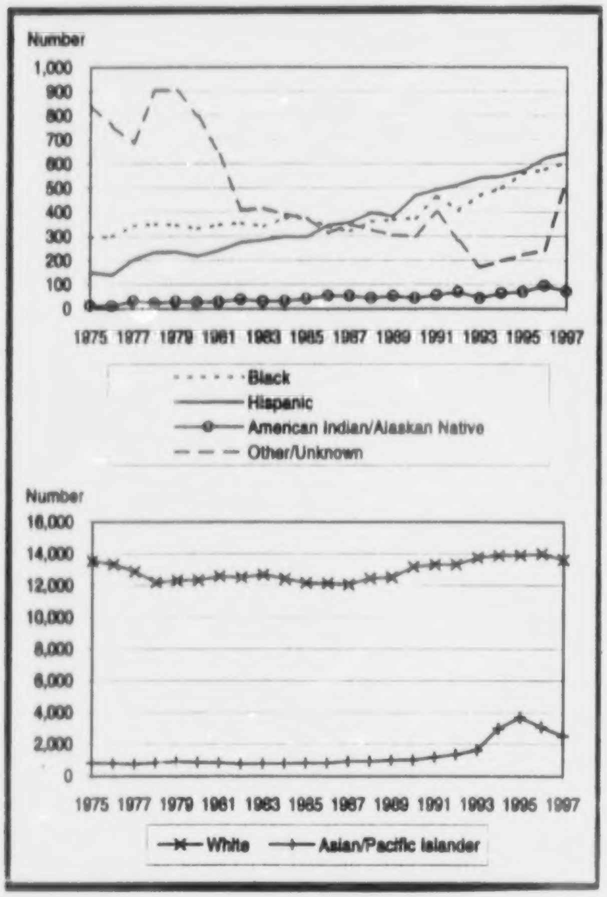
Figure 4-7.

Doctoral degrees in science and engineering, by race/ethnicity of U.S. citizens and permanent residents: 1975-97



NOTE: The higher numbers of Asians in the late 1990s is partly a result of the Chinese Student Protection Act of 1992 which made thousands of Chinese in the United States eligible to apply for permanent residency.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

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occurred in the 1990s. The number of doctoral degrees in science and engineering awarded to whites fluctuated between 12,000 and 14,000 from 1975 through 1997.

Asians

Asians earned 14 percent of the science and engineering doctorates awarded to U.S. citizens and permanent residents in 1997; this was up from 5 percent in 1975. (See appendix table 4-12.) Asians earned, in contrast, only 5 percent of the doctorates awarded that year in non-science and -engineering fields. The number of doctoral degrees in science and engineering earned by U.S. citizen or permanent resident Asians spiked in 1994 and 1995 as a result of changes in immigration policy. (See sidebar on following page.) Although the numbers of these doctorate-holders dropped in 1996 and 1997, they were still well above the 1993 total.

Asians constituted about one-fifth of engineering and computer science doctorate recipients in 1997 and about one-sixth of the doctorate recipients in the physical sciences, mathematics, and biological sciences. They receive relatively small percentages of the doctorates awarded in psychology (4 percent) and the social sciences (8 percent). (See appendix table 4-12.)

The Chinese Student Protection Act

The Chinese Student Protection Act of 1992 made thousands of students from the People's Republic of China who were enrolled in U.S. universities in 1989 at the time of the Tiananmen incident eligible to apply for permanent residency in 1993. The number of these students who had permanent visas at the time of science and engineering Ph.D. conferral rose from 162 (or 8 percent of all science and engineering students from China) in 1992 to 2,169 (79 percent) in 1995. The percentage holding permanent visas dropped in 1996 and 1997 as the number of students eligible for permanent residency under the act declined. (See text table 4-3.)

Text table 4-3.

Number and percentage of science and engineering doctorate recipients from the People's Republic of China, by type of visa: 1990–97

Year	Total		Permanent visas		Temporary visas	
	Number	Percent	Number	Percent	Number	Percent
1990	1,150	100.0	54	4.7	1,096	95.3
1991	1,793	100.0	100	5.6	1,693	94.4
1992	2,045	100.0	162	7.9	1,883	92.1
1993	2,227	100.0	352	15.8	1,875	84.2
1994	2,531	100.0	1,642	64.9	889	35.1
1995	2,752	100.0	2,169	78.8	583	21.2
1996[1]	2,953	100.0	1,628	55.1	1,324	44.8
1997	2.223	100.0	949	42.7	1.274	57.3

[1] Total includes one person of unknown visa type.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Blacks

The number of science and engineering doctorates awarded to blacks remained fairly constant from 1975 to 1990—approximately 300 to 375 degrees per year—but rose in the 1990s, reaching 607 in 1997. (See appendix table 4-12.) Blacks accounted for 3 percent of all science and engineering doctorate recipients in 1997, up from 2 percent in 1975. In contrast, they received 7 percent of the doctorates in non-science and -engineering fields in 1997.

Fewer than half of all doctoral degrees earned by blacks were in science and engineering. Blacks earned almost as many doctoral degrees in education (553) as they did in science and engineering in 1997. Half of the science and engineering doctorates earned by blacks in 1997 were in psychology and the social sciences, compared with 32 percent of those earned by all U.S. citizens and permanent residents. (See appendix table 4-13.)

Hispanics

Hispanics earned 151 of the science and engineering Ph.D.s awarded in 1975 and 645 of those awarded in 1997. (See appendix table 4-12.) They comprised 4 percent of the science and engineering doctorate recipients in 1997, up from just 1 percent in 1975. Hispanics also accounted for 4 percent of the doctorate recipients in non-science and -engineering fields in 1997.

About one-fourth (27 percent) of the science and engineering doctorates earned by Hispanics in 1997 were awarded to Puerto Ricans; another one-fourth (24 percent) were awarded to Mexican Americans. (See appendix table 4-13.)

Fifty-five percent of all doctorates earned by Hispanics in 1997 were in science and engineering fields. More than one-fourth (26 percent) of these were in psychology; in contrast, 17 percent of the science and engineering doctorates earned by all U.S. citizens and permanent residents were in this field.

American Indians

The number of science and engineering doctorates earned by American Indians increased from 13 in 1975 to 96 in 1996, but dropped to 71 in 1997. (See appendix table 4-12.) American Indians earned 0.4 percent of the science and engineering doctorates awarded to U.S. citizens and permanent residents in 1997, up from 0.1 percent in 1975. They earned 0.6 percent of non-science and -engineering doctorates in 1997.

Forty-six percent of the science and engineering doctorates earned by American Indians in 1997 were in psychology and the social sciences in 1997, compared with 32 percent of those earned by all U.S. citizens and permanent residents.

Minority women

The numbers of doctoral degrees in science and engineering awarded to women and men in almost every racial/ethnic group increased from 1975 to 1997, with the single exception of white men. (See appendix tables 4-14 and 4-15.) The numbers of doctorates granted to women in each racial/ethnic group more than doubled in this time period: from 2,347 to 5,180 for white women, 71 to 280 for black women, 108 to 896 for Asian women, 16 to 262 for Hispanic women, and 3 to 31 for American Indian women.

The proportions of doctoral degrees granted in science and engineering to women in each racial/ethnic group also increased from 1975 to 1997. (See text table 4-4.) Asian, black, Hispanic, and American Indian women accounted for less than 1 percent of U.S. citizen and permanent resident doctorate recipients in 1975. In 1997, in contrast, Asian women received 5 percent, black women 1.6 percent, Hispanic women 1.5 percent, and American Indian women 0.2 percent of science and engineering doctoral degrees.

In 1997, women earned fewer than half of the science and engineering doctorates in every racial/ethnic group. Specifically, women earned 46 percent of science and engineering doctorates among blacks and 44 percent, 41 percent, 38 percent, and 35 percent among American Indians, Hispanics, whites, and Asians, respectively. (See appendix tables 4-14 and 4-15.)

Text table 4-4.

Number and percentage of doctoral degrees in science and engineering, by sex and race/ethnicity of U.S. citizens and permanent residents: 1975 and 1997

	1975						1997					
	Both sexes		Women		Men		Both sexes		Women		Men	
Race/ethnicity	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total, U.S. citizens and permanent residents	15,641	100.0	2,651	16.9	12,990	83.1	18,005	100.0	6,814	37.8	11,191	62.2
White, non-Hispanic	13,526	86.5	2,347	15.0	11,179	71.5	13,623	75.7	5,180	28.8	8,443	46.9
Asian/Pacific Islander	814	5.2	106	0.7	706	4.5	2,527	14.0	896	5.0	1,631	9.1
Black, non-Hispanic	295	1.9	71	0.5	224	1.4	607	3.4	280	1.6	327	1.8
Hispanic	151	1.0	16	0.1	135	0.9	645	3.6	262	1.5	383	2.1
American Indian/Alaskan Native	13	0.1	3	0.0	10	0.1	71	0.4	31	0.2	40	0.2
Other/unknown race/ethnicity	842	5.4	106	0.7	736	4.7	532	3.0	165	0.9	367	2.0

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Baccalaureate-origin Institutions for Minority Recipients of Science and Engineering Doctorates

Even as they do in the undergraduate education of black students in science and engineering, Historically Black Colleges and Universities (HBCUs) play an important role in educating blacks who go on to earn doctorates in these fields. Twenty of the top 50 baccalaureate-origin institutions of 1993–97 black doctorate recipients were HBCUs. (See text table 4-5.)

The baccalaureate-origin institutions of Hispanic and American Indian doctorate recipients reflect to some degree the geographic concentration of their populations. Twenty-six of the top 50 baccalaureate-origin institutions of Hispanic doctorate recipients are in Puerto Rico, California, Florida, and Texas. Six of the 27 institutions that were baccalaureate-origin institutions of three or more American Indian doctorate recipients are in California and Oklahoma.

Research I universities also play a large role in the undergraduate education of minority science and engineering doctorate recipients. More than 20 of the top 50 baccalaureate-origin institutions for each racial/ethnic group were Research I universities. White and Asian science and engineering doctorate recipients, however, were the most likely to have earned bachelor's degrees in such universities—more than 40 of the top 50 baccalaureate-origin institutions were Research I institutions.

Persons with disabilities

The number of science and engineering doctorates earned by persons with disabilities was 318 in 1997, or about 1 percent of the total number of science and engineering doctoral degrees awarded. The percentage of science and engineering doctorate recipients with disabilities has not changed appreciably since 1989. (See appendix table 4-16.)

Higher proportions of doctorate recipients with disabilities than of those without disabilities earned their doctorates in psychology and the social sciences; lower proportions earned their doctorates in the physical sciences, biological sciences, and engineering. (See appendix table 4-17 and figure 4-8.)

Postgraduation plans and postdoctoral fellowships[8]

About two-thirds of U.S. citizen and permanent resident science and engineering doctorate recipients in 1997 had definite postgraduation plans at the time they received their doctorate, and 61 percent had definite plans to remain in the United States. Of these last, 36 percent planned to pursue postdoctoral study. (See appendix table 4-18.)

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[8] The data presented here apply to U.S. citizens and permanent residents only.

Text table 4-5.
Top 50 institutions that were baccalaureate origins of 1993–97 science and engineering doctorate recipients, by race/ethnicity

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Rank	Black, non-Hispanic		White, non-Hispanic		Hispanic	
	Academic institution	Number of doctorates	Academic institution	Number of doctorates	Academic institution	Number of doctorates
1	Howard University	101	University of California-Berkeley	1,080	University of Puerto Rico-Rio Piedras	223
2	Spelman College	44	University of Illinois at Urbana-Champaign	991	University of Puerto Rico-Mayaguez	115
3	Massachusetts Institute of Technology	27	University of Michigan at Ann Arbor	889	University of California-Berkeley	64
4	University of Maryland at College Park	26	University of Wisconsin-Madison	841	University of California-Los Angeles	57
5	Tuskegee University	24	Pennsylvania State University, Main Campus	804	University of Texas at Austin	46
6	Morehouse College	24	Cornell University, All Campuses	739	University of Miami	44
7	Wayne State University	24	Massachusetts Institute of Technology	719	University of Texas at El Paso	38
8	Hampton University	24	University of Texas at Austin	620	Massachusetts Institute of Technology	37
9	University of Michigan at Ann Arbor	24	University of Minnesota-Twin Cities	617	University of California-Irvine	31
10	Southern University A&M College at Baton Rouge	24	Harvard University	577	Cornell University, All Campuses	31
11	North Carolina Agricultural & Technical State University	23	Ohio State University, Main Campus	568	University of Florida	28
12	Michigan State University	22	Michigan State University	564	Stanford University	27
13	Alabama Agricultural and Mechanical University	21	University of California-Davis	557	University of New Mexico, All Campuses	26
14	University of California-Berkeley	21	Texas A&M University Main Campus	556	University of California-San Diego	25
15	North Carolina State University at Raleigh	21	University of California-Los Angeles	554	Texas A&M University, Main Campus	25
16	Lincoln University (Pennsylvania)	21	Purdue University, Main Campus	540	University of California-Davis	22
17	Northwestern University	19	Rutgers-New Brunswick	504	Florida International University	22
18	Harvard University	19	Brigham Young University, Main Campus	490	San Diego State University	21
19	Jackson State University	19	Virginia Polytechnic Institute and State University	472	New Mexico State University, All Campuses	21
20	Princeton University	19	Princeton University	469	University of Michigan at Ann Arbor	21
21	Florida Agricultural and Mechanical University	18	University of California-San Diego	467	Harvard University	19
22	Tougaloo College	18	University of Washington-Seattle	467	The Pontifical Catholic University of Puerto Rico	19
23	City University of New York City College	18	University of Colorado at Boulder	455	Rutgers-New Brunswick	19
24	Brown University	18	University of Pennsylvania	447	University of California-Santa Barbara	18
25	Fisk University	16	Stanford University	445	University of Maryland at College Park	18
26	North Carolina Central University	15	University of Florida	429	New York University	17
27	Tennessee State University	15	Yale University	427	Georgia Institute of Technology, Main Campus	15
28	Morgan State University	14	Iowa State University	421	University of Arizona	14
29	City University of New York Brooklyn College	14	University of Maryland at College Park	413	California State University-Northridge	14
30	University of North Carolina at Chapel Hill	14	Brown University	394	University of Illinois at Urbana-Champaign	14
31	University of South Carolina at Columbia	14	University of Virginia, Main Campus	388	University of Houston	14
32	University of the District of Columbia	14	Duke University	381	California State University-Los Angeles	13
33	University of California-Los Angeles	13	University of California-Santa Cruz	374	Fordham University	13
34	Yale University	13	University of Chicago	370	University of Pennsylvania	13
35	University of Florida	13	University of Massachusetts at Amherst	369	Inter American University of Puerto Rico-San German	13
36	Clark Atlanta University	13	University of California-Santa Barbara	365	California State University-Long Beach	12
37	State University of New York at Buffalo	13	State University of New York at Buffalo	353	University of Southern California	12
38	Cornell University, All Campuses	13	Indiana University at Bloomington	336	University of South Florida	12
39	City University of New York Hunter College	12	University of North Carolina at Chapel Hill	328	Louisiana State University	12
40	Columbia University in the City of New York	12	Rensselaer Polytechnic Institute	316	Princeton University	12
41	University of Alabama	11	North Carolina State University at Raleigh	316	Duke University	12
42	Grambling State University	11	University of Iowa	304	University of Texas-Pan American	12
43	Xavier University of Louisiana	11	University of Arizona	303	University of Colorado at Boulder	11
44	New York University	11	University of Delaware	300	Yale University	11
45	University of Pennsylvania	11	Rice University	293	University of Chicago	11
46	Ohio State University, Main Campus	11	University of California-Irvine	291	Michigan State University	11
47	Stanford University	10	University of Rochester	285	University of California-Riverside	10
48	Georgia State University	10	University of Notre Dame	284	Tulane University	10
49	University of Illinois at Urbana-Champaign	10	Northwestern University	274	Johns Hopkins University	10
50	Boston University	10	Washington University	272	Brown University	10

See explanatory information and SOURCES at end of table.

Text table 4-5.
Top 50 institutions that were baccalaureate origins of 1993–97 science and engineering doctorate recipients, by race/ethnicity

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Rank	Asian/Pacific Islander Academic institution	Number of doctorates	American Indian/Alaskan Native Academic institution	Number of doctorates
1	University of California-Berkeley	353	University of Oklahoma, Norman Campus	10
2	Massachusetts Institute of Technology	142	University of California-Berkeley	8
3	University of California-Los Angeles	132	Oklahoma State University, All Campuses	7
4	Harvard University	91	Auburn University, Main Campus	4
5	California Institute of Technology	80	University of Arkansas, Main Campus	4
6	Stanford University	75	University of Arizona	3
7	University of Hawaii at Manoa	72	University of California-Irvine	3
8	University of California-Davis	69	University of California-Santa Barbara	3
9	Cornell University, All Campuses	69	Colorado State University	3
10	University of Michigan at Ann Arbor	65	University of Colorado at Boulder	3
11	Princeton University	63	University of Delaware	3
12	University of Illinois at Urbana-Champaign	59	University of Illinois at Urbana-Champaign	3
13	University of California-Irvine	55	Iowa State University	3
14	University of Maryland at College Park	50	Tufts University	3
15	University of Washington-Seattle	48	Michigan State University	3
16	Johns Hopkins University	43	Southwest Missouri State University	3
17	University of California-San Diego	42	University of Missouri, Columbia	3
18	University of Texas at Austin	41	University of Montana	3
19	Yale University	39	University of North Carolina at Chapel Hill	3
20	University of Chicago	38	University of North Carolina at Charlotte	3
21	Northwestern University	37	University of Central Oklahoma	3
22	University of Pennsylvania	36	Northeastern State University	3
23	University of Southern California	34	University of Texas at Austin	3
24	Purdue University, Main Campus	32	Central Washington University	3
25	Columbia University in the City of New York	32	University of Wisconsin-Madison	3
26	Brown University	29	University of Wisconsin-Milwaukee	3
27	University of Minnesota-Twin Cities	29	University of Virginia, Main Campus	3
28	Rutgers-New Brunswick	29	California Institute of Technology	2
29	University of Wisconsin-Madison	28	California State University-Fullerton	2
30	State Univ. of New York at Stony Brook, All Campuses	28	San Diego State University	2
31	University of California-Santa Barbara	27	University of California-Davis	2
32	Pennsylvania State U, Main Campus	24	University of California-Los Angeles	2
33	Texas A&M University, Main Campus	24	University of California-San Diego	2
34	University of California-Santa Cruz	23	University of California-Santa Cruz	2
35	Carnegie Mellon University	23	Florida Atlantic University	2
36	California State University-Long Beach	22	Jacksonville University	2
37	Washington University	22	University of Florida	2
38	Harvey Mudd College	20	Emory University	2
39	University of Colorado at Boulder	19	Loyola University of Chicago	2
40	Rensselaer Polytechnic Institute	19	University of Kansas, Main Campus	2
41	State University of New York at Buffalo	19	McNeese State University	2
42	Georgia Institute of Technology, Main Campus	18	Boston University	2
43	University of Rochester	18	Harvard University	2
44	Case Western Reserve University	17	Massachusetts Institute of Technology	2
45	New York University	16	University of New Mexico, All Campuses	2
46	Duke University	16	State University of New York at Albany	2
47	Ohio State University, Main Campus	16	University of Tulsa	2
48	San Francisco State University	15	Shippensburg University of Pennsylvania	2
49	San Jose State University	15	Swarthmore College	2
50	Wellesley College	15	University of Pennsylvania	2

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Financial Support in Graduate School

Students typically rely on more than one means of financial support in graduate school. Among 1995 science and engineering doctorate recipients, 86 percent reported using two or more means of financial support in graduate school (NSF 2000). Men and women and the various racial/ethnic groups tended to rely on different combinations of these means of financial support.

Sex. Although the three most prevalent combinations of support for male and female science and engineering doctorate recipients (research assistantship plus teaching assistantship, research assistantship plus own funds, and research assistantship plus teaching assistantship plus own funds) were identical in 1995, own funds and research assistantships were the fourth and fifth most frequently reported modes for women, compared to research assistantships and teaching assistantships plus own funds for men. The top five support modes for women accounted for 31 percent of doctorate recipients; the men's top five accounted for 44 percent. (See text table 4-6.)

Differences in field of doctorate account for some, but not all, of these differences. In many fields (for example, the social sciences, psychology, computer and information sciences, physical sciences, biological sciences, and engineering), the combinations of means of financial support were similar. In some fields, however, the combinations differ. For example, in mathematics, the most frequent combination for men was a research assistantship plus a teaching assistantship, while for women it was a teaching assistantship and own funds. In the earth, atmospheric, and ocean sciences, women and men shared the same top four combinations, but the most frequent combination for women was research assistantship plus teaching assistantship plus own funds, while for men it was research assistantship plus own funds.

Race/ethnicity of U.S. citizens and permanent residents. Support patterns in graduate school vary considerably by race/ethnicity. (See text table 4-7.) For U.S. citizen and permanent resident white and underrepresented minority (that is, non-Hispanic black, Hispanic, and American Indian) doctorate recipients, research assistantship plus own funds was the most frequently used means of support in graduate school. For U.S. citizen and permanent resident Asians, the combination of research assistantship plus teaching assistantship was the most frequently used means of support. Each of the top five combinations of modes of support for underrepresented minorities involves using their own resources; no other group shows such extensive reliance on own funds in their top five combinations of support modes.

Field of study differences are related to differences in financial support. Asians were more likely than other groups to receive their doctorates in engineering, the biological sciences, and the physical sciences—fields in which reliance on research assistantships is prevalent. Underrepresented minorities were more likely than other groups to receive their doctorates in the social sciences and psychology—fields in which reliance on own funds is prevalent. But within each major field of study, a larger percentage of both underrepresented minorities and whites reported using their own funds and loans than did Asians. One factor in this disparity might be the Chinese Student Protection Act of 1992: A large proportion of the U.S. citizen and permanent resident Asians receiving science and engineering Ph.D.s in 1995 were likely Chinese who may have entered graduate school as temporary residents and were therefore ineligible for many Federal loan programs that require U.S. citizenship or permanent residency.

Text table 4-6.
Top five combinations of financial support of doctorate recipients, by sex: 1995

Sex and combinations of financial support	Number of doctorates	Percent of total
Women		
Research assistantship + teaching assistantship	617	7.2
Research assistantship + own funds	594	6.9
Research assistantship + teaching assistantship + own funds	571	6.7
Own funds	462	5.4
Research assistantship	436	5.1
Men		
Research assistantship + teaching assistantship	2,086	11.9
Research assistantship + own funds	1,944	11.1
Research assistantship + teaching assistantship + own funds	1,432	8.2
Research assistantship	1,331	7.6
Teaching assistantship + own funds	842	4.8

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Women

Among all U.S. citizen and permanent resident science and engineering doctoral recipients in 1997 who had definite postgraduation plans, women were more likely than men to have plans for postdoctoral study (39 percent versus 34 percent) or for academic employment (23 percent versus 17 percent). On the other hand, they were less likely than men to have plans for employment in industry (14 percent versus 25 percent). These general findings vary somewhat by field, however. Thus, within some fields (physical sciences, biological sciences, agricultural sciences, psychology, social sciences) men's and women's postgraduation plans were similar. For example, within the physical sciences, 28 percent of both men and women planned industrial employment. Within other fields, differences remain. In mathematics, for example, 43 percent of women and 36 percent of men planned academic employment.

The number of postdoctoral fellows—of either sex—in science and engineering steadily increased from 1979 to 1997. (See appendix table 4-19.) During this period, the proportion of postdoctorates held by women rose from 19 percent to 29 percent. Women accounted for a smaller percentage of postdoctoral fellows than of doctorate recipients (33 percent) in 1997, particularly in mathematics and psychology. (See figure 4-9.)

Text table 4-7.
Top five combinations of financial support of doctorate recipients, by race/ethnicity: 1995

Race/ethnicity and combinations of financial support	Number of doctorates	Percent of total
White		
Research assistantship + own funds	1,057	7.5
Research assistantship + teaching assistantship + own funds	966	6.8
Research assistantship + teaching assistantship	860	6.1
Own funds	746	5.3
Research assistantship + teaching assistantship + own funds + loan	670	4.7
Asian/Pacific Islander		
Research assistantship + teaching assistantship	797	21.8
Research assistantship	605	16.5
Research assistantship + own funds	359	9.8
Research assistantship + teaching assistantship + own funds	300	8.2
Teaching assistantship + own funds	123	3.4
Underrepresented minority[1]		
Research assistantship + own funds	64	5.2
Own funds + loan	62	5.0
Own funds + other	55	4.5
Own funds	48	3.9
Teaching assistantship + own funds	47	3.8

[1] "Underrepresented minority" includes non-Hispanic blacks, Hispanics, and American Indians/Alaskan Natives.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

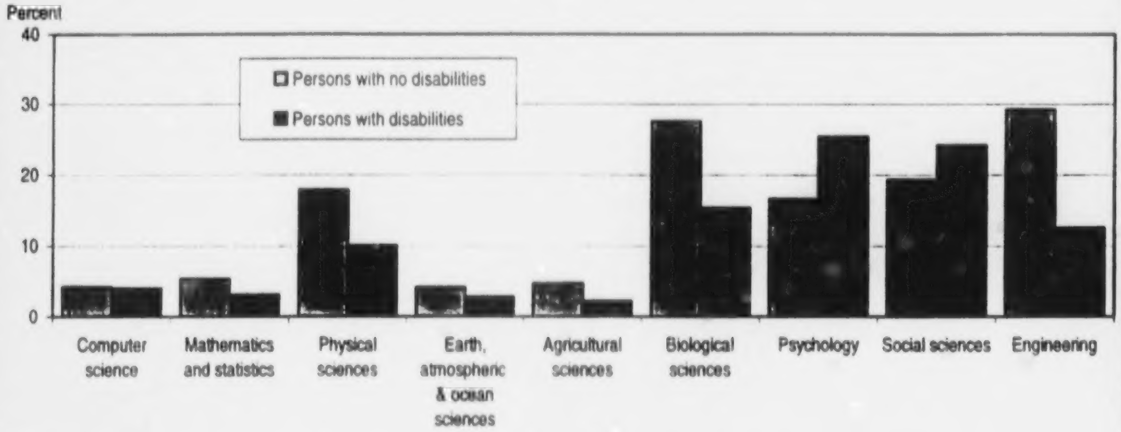
Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Minorities

Black and American Indian U.S. citizen and permanent resident science and engineering doctorate recipients in 1997 were less likely than members of other racial/ethnic groups to have definite plans for postdoctoral study. Among those with plans for employment, a higher percentage of blacks and American Indians than of whites and Asians had definite plans for academic employment, while a lower percentage had definite plans for industrial employment. (See appendix table 4-20.) These patterns are related to differences in degree field—those with degrees in the social sciences and psychology are less likely than those whose degrees were in other fields to take postdoctoral appointments and are more likely to choose academic employment.

Figure 4-8.

Percentage distribution of doctoral degrees in science and engineering, by disability status and field: 1997

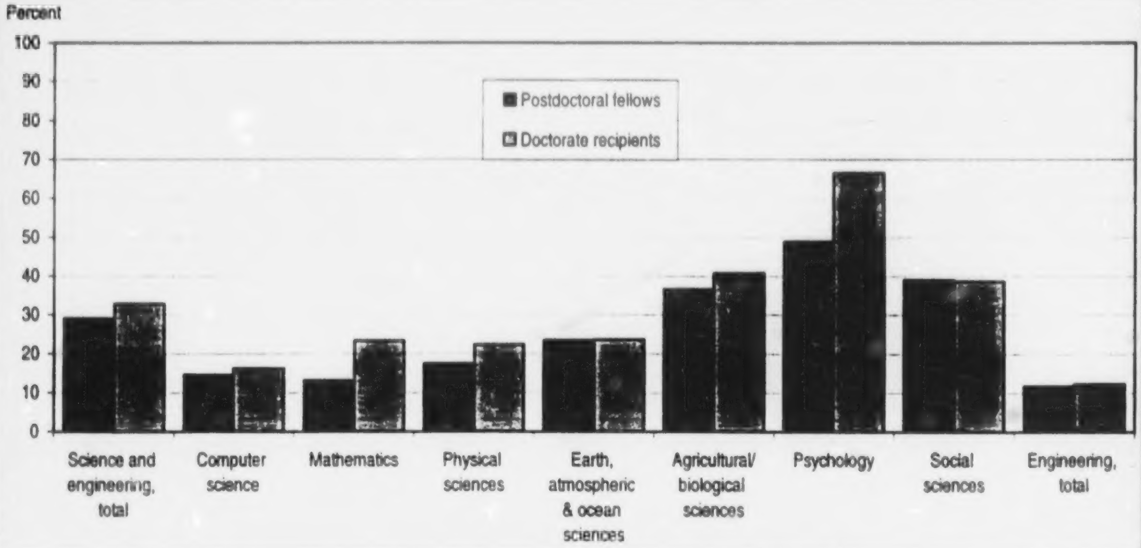


SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Figure 4-9.

Women as a percentage of science and engineering postdoctoral fellows and of doctorate recipients, by field: 1997



SOURCES: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates and Survey of Graduate Students and Postdoctorates in Science and Engineering.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Persons with disabilities

Persons with disabilities were less likely than those with no disabilities among the 1997 cohort of U.S. citizen and permanent resident science and engineering doctoral recipients to have plans for postdoctoral study (28 percent versus 36 percent) and for industrial employment (18 percent versus 21 percent). (See appendix table 4-21.) Persons with disabilities were more likely than those without to have plans for academic employment (23 percent versus 19 percent) and employment in "other" sectors (22 percent versus 16 percent). These patterns are, again, related to differences in degree field (as was the case for women and minorities). Higher percentages of doctorate recipients with disabilities than without disabilities earned their doctorates in psychology and the social sciences, fields in which fewer recipients pursue postdoctoral study; lower percentages earned their doctorates in the physical and biological sciences, which are fields in which postdoctoral study is prevalent.

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CHAPTER 5

EMPLOYMENT

Overview

Differences in participation of women, minorities, and persons with disabilities in science and engineering employment are rooted in differences in their current and historic participation in science and engineering education. As previous chapters show, the proportions of science and engineering degrees earned by women and minorities have increased over time. Because the science and engineering labor force is comprised of people who received their degrees from about the 1940s to the present and because women and minorities were a smaller percentage of earlier years' degree recipients, women and minorities are a smaller percentage of the labor force as a whole than they are of current degree recipients.

Trends in science and engineering employment, 1993–97[1]

Women

Women constituted 23 percent of the science and engineering[2] labor force (that is, those who are either employed or seeking work) in 1997. (See text table 5-1 and appendix table 5-1.) Among recent graduates (those who graduated in 1990 or later), women represented 30 percent of the science and engineering labor force. (See text table 5-2.) Short-term trends show the same percentage of women participating in the science and engineering labor force in 1993 as in 1997. (See text table 5-1.) Women accounted for approximately the same percentages of life scientists, physical scientists, social scientists, and engineers in 1993 and 1997. They comprised a slightly smaller percentage of computer and mathematical scientists in 1997 than in 1993.[3]

Text table 5-1.

Percentage of scientists and engineers in the labor force who are women: 1993, 1995, and 1997

Occupation	1993	1995	1997
Total scientists and engineers	22.8	22.4	22.8
Computer/mathematical scientists	30.7	28.9	27.3
Life and related scientists	34.3	34.9	36.2
Physical and related scientists	21.5	21.6	21.9
Social and related scientists	50.5	49.9	52.1
Engineers	8.6	8.6	9.1

SOURCE: National Science Foundation/Division of Science Resources Studies 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Both the numbers and percentages of female doctoral scientists and engineers in the United States increased from 1993 to 1997. As a proportion of all doctoral scientists, women increased from 23 to 26 percent between 1993 and 1997; as a proportion of doctoral engineers, they increased from 4 to 6 percent (NSF 1999a).

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[1] Much of the data in this chapter come from the National Science Foundation's SESTAT (Scientists and Engineers Statistical Data System) surveys. (See appendix A for a description of the SESTAT population and information relating to standard errors of the estimates from these surveys.) Because changes were made in these surveys over time in response to user requests for improvements, long-term trend data on science and engineering employment are not available; comparisons can be made, however, between 1993 and 1997.

[2] Throughout this chapter, scientists and engineers are defined in terms of occupation, not degree field. See appendix A for the SESTAT classification of science and engineering and non-science and -engineering occupations. The term "scientists and engineers" includes all people who were employed in a science or engineering occupation and who have ever received a bachelor's degree or higher in a science or engineering field, plus those people holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

[3] The difference is significant at the 95 percent confidence level.

Text table 5-2.

Percentage distribution of scientists and engineers in the labor force, by sex, race/ethnicity and disability status: 1997

Sex, race/ethnicity, and disability status	Recent graduates[1]	Total labor force
Sex		
Men	70.5	77.2
Women	29.5	22.8
Race/ethnicity		
White, non-Hispanic	76.0	82.8
Asian/Pacific Islander	14.8	10.4
Black, non-Hispanic	4.2	3.4
Hispanic	4.4	3.1
American Indian/Alaskan Native	0.5	0.3
Disability status		
Persons without disabilities	97.1	94.4
Persons with disabilities	2.9	5.6

[1] Recent graduates are those who graduated in 1990 or later.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System)

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Minorities[4]

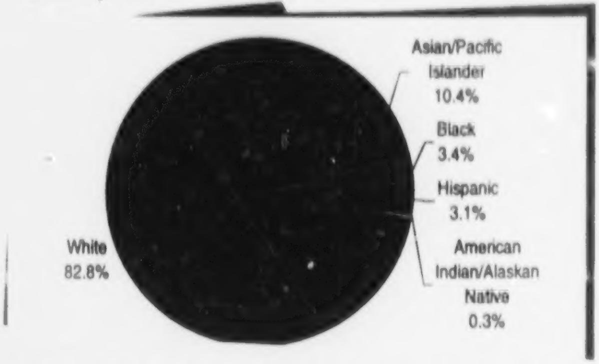
Asians made up 10 percent of all scientists and engineers in the United States in 1997. Blacks and Hispanics were each about 3 percent, and American Indians were 0.3 percent of the country's scientists and engineers. (See figure 5-1, text table 5-2, and appendix table 5-2.) The percentage distribution of scientists and engineers in the labor force by race/ethnicity changed little between 1993 and 1997, with the exception of a slight increase in the percentage who are Asian and a slight decrease in the percentage who are white. (See text table 5-3.)

Minority women

Twenty percent of all women in the science and engineering labor force are minority women; they accounted for 4.6 percent of all scientists and engineers in the labor force in 1997. (See appendix table 5-3.) More specifically, black women were 1 percent, Hispanic women 1 percent, American Indian women 0.1 percent, and Asian women 2 percent of the scientists and engineers in the labor force.

Figure 5-1.

Scientists and engineers in the U.S. labor force, by race/ethnicity: 1997



NOTE: "Other" race/ethnicity included with American Indian/Alaskan Native.

SOURCE: National Science Foundation, Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System)

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Text table 5-3.

Percentage distribution of scientists and engineers in the labor force, by race/ethnicity: 1993, 1995, and 1997

Race/ethnicity	1993	1995	1997
White, non-Hispanic	83.9	83.8	82.8
Asian/Pacific Islander	9.2	9.7	10.4
Black, non-Hispanic	3.6	3.4	3.4
Hispanic	3.0	2.8	3.1
American Indian/Alaskan Native[1]	0.3	0.3	0.3

[1] "Other" race/ethnicity included with American Indian/Alaskan Native.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System)

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Within every racial/ethnic group, women were a smaller percentage of the science and engineering labor force than were men. These figures are about the same as in 1993. (See text table 5-4.).

Persons with disabilities

Persons with disabilities also make up only a small percentage of those in science and engineering occupations. In 1997, they were 6 percent of the scientists and engineers in the labor force; this was about the same as in 1993. (See text table 5-5 and appendix table 5-4.)

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[4] Unlike the previous chapters, racial/ethnic groups are here not restricted to U.S. citizens and permanent residents. Persons with temporary visa status, however, are not likely to be employed; fewer than 2 percent of all people employed in science and engineering occupations have temporary visas.

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Measuring Disabilities for People in the Labor Force

As noted in chapter 2, there is no consensus on the definition of disabilities. Therefore, in examining statistics related to disabilities, it is necessary to understand the definition used to compile the data.

The National Science Foundation's surveys used a functional definition of disability patterned after one developed for a survey of individuals with disabilities by the Census Bureau. This measure was based on asking individuals, "What is the USUAL degree of difficulty you have with [specific tasks involving seeing, hearing, walking, and lifting]?" (The full wording of these alternatives in the survey forms is "SEEING words or letters in ordinary newsprint [with glasses/contact lenses if you usually wear them]," "HEARING what is normally said in conversation with another person [with hearing aid, if you usually wear one]," "WALKING without assistance [human or mechanical] or using stairs," "LIFTING or carrying something as heavy as 10 pounds, such as a bag of groceries.") Respondents were given five choices for each item, ranging from "none" to "unable to do." Unless elsewhere noted, having a disability is defined for this survey as having at least moderate difficulty in performing one or more of these tasks.

Although this definition was designed to provide a relatively objective measure of disability, it is important to note that it does not capture all disabilities. For example, learning disabilities and behavioral disorders are not included.[5]

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[5] Additional measures of types of disability were omitted from the surveys due to practical limitations. The disability questions included in the questionnaires were considered burdensome and intrusive by many respondents. The survey designers were concerned that additional questions in this area would have a serious negative impact on overall response rate and survey validity—particularly if the surveys requested information on highly sensitive disabilities.

Text table 5-4.
Percentage of scientists and engineers in the labor force, by sex and race/ethnicity: 1993, 1995, and 1997

Sex and race/ethnicity	1993	1995	1997
Total	100.0	100.0	100.0
Women			
White, non-Hispanic	18.5	18.2	18.2
Asian/Pacific Islander	2.2	2.2	2.4
Black, non-Hispanic	1.3	1.3	1.2
Hispanic	0.7	0.7	0.8
American Indian/Alaskan Native	0.1	0.1	0.1
Men			
White, non-Hispanic	65.4	65.8	64.5
Asian/Pacific Islander	7.0	7.5	8.0
Black, non-Hispanic	2.3	2.1	2.1
Hispanic	2.2	2.2	2.3
American Indian/Alaskan Native	0.2	0.2	0.2

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Text table 5-5.
Percentage distribution of scientists and engineers in the labor force, by disability status: 1993, 1995, and 1997

Disability status	1993	1995	1997
Persons with disabilities	5.1	4.9	5.6
Persons without disabilities	94.9	95.1	94.4

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Demographic characteristics: Age and educational attainment

Women

Differences in age are related to many of the differences in employment characteristics between male and female scientists and engineers. Female scientists and engineers are younger, on average, than men: 35 percent of the women and 27 percent of the men employed as scientists and engineers in 1997 were younger than age 35. (See appendix table 5-5.)

In the science labor force as a whole, about 13 percent of both women and men hold doctorates. (See appendix table 5-1.) However, female scientists have, in many occupations, a lower level of educational attainment than their male counterparts. Among biological scientists, 26 percent of women and 42 percent of men hold doctoral degrees; among chemists, 14 percent of women and 28 percent of men hold doctoral degrees; and among psychologists, 24 percent of women and 40 percent of men hold doctoral degrees. Among engineers, only 4 percent of women and 6 percent of men had doctoral degrees in 1997. The highest degree earned is related to employment, particularly primary work activity and salary—that is, scientists and engineers with a bachelor's degree often do different kinds of work and earn lower salaries than scientists and engineers with Ph.D.s.

Minorities

The age distributions of racial/ethnic groups among scientists and engineers differ. As noted earlier, these variations are related to differences in employment characteristics. About 27 percent of employed white scientists and engineers were younger than age 35, compared with between 35 and 38 percent of Asian, black, American Indian, and Hispanic scientists and engineers. (See appendix table 5-5.)

The educational attainment of scientists and engineers differs among racial/ethnic groups. Black scientists and engineers have, on average, a lower level of educational attainment than scientists and engineers of other racial/ethnic groups. Black scientists and engineers are more likely than white, Hispanic, or Asian scientists and engineers to have a baccalaureate as their highest degree: 64 percent of black scientists and engineers in the U.S. labor force had a bachelor's as their highest degree compared with 57 percent of all scientists and engineers in 1997. (See appendix table 5-2.)

Persons with disabilities

Scientists and engineers with disabilities are older, on average, than are those without disabilities. Only 11 percent of employed scientists and engineers with disabilities were younger than age 35 in 1997 compared with 30 percent of those without disabilities. Conversely, 66 percent of those with disabilities and 36 percent of those without were age 45 or older. (See appendix table 5-5.)

The percentage of scientists and engineers with disabilities increases with age. More than half of scientists and engineers with disabilities became disabled at age 30 or older. Only 8 percent of those with disabilities had been disabled since birth, and one-third had been disabled before the age of 20. (See appendix table 5-6.)

Scientists and engineers with disabilities do not differ greatly from those without disabilities in terms of their educational background: 15 percent of those with disabilities and 13 percent of those without had a doctorate as their highest degree. (See appendix table 5-4.)

Science and engineering occupation

Women

As with degree fields (see chapters 3 and 4), women and men differ in science and engineering occupation. Women constitute higher percentages of some science and engineering occupations than of others. For example, more than half of all psychologists (63 percent) and sociologists (55 percent) were women, compared with 10 percent of physicists and 9 percent of engineers. (See appendix table 5-1.) Women also constitute higher percentages of some engineering occupations than others; for example, 14 percent of chemical engineers were women, compared with 11 percent of industrial engineers, 9 percent of civil engineers, and 7 percent of electrical engineers.

A dissimilarity index was constructed to measure the amount of similarity or dissimilarity in the distributions of men and women by occupation.[6] Roughly one-third of women would have to switch their occupation to match the distribution of men in the same set of science and engineering occupations. (See text table 5-6.)

Minorities

Black, Asian, and American Indian scientists and engineers accounted for larger percentages of some occupations than of others. (See appendix table 5-2.) Asians represented a lower percentage of social scientists than

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[6] The dissimilarity index is a measure of the percentage of female scientists and engineers who would need to switch occupations to match the percentage distribution by occupation of male scientists and engineers. The index is calculated as the sum of the absolute difference between the percentage of female scientists and engineers working in each occupation and the percentage of male scientists and engineers working in each occupation divided by 2.

Text table 5-6.
Indices of dissimilarity in science and engineering occupation, by sex, race/ethnicity, and disability status: 1997

Occupation	Index of dissimilarity
Women	33.6
Black, non-Hispanic	15.9
Hispanic	10.2
Asian/Pacific Islander	16.1
American Indian/Alaskan Native	23.8
Persons with disabilities	7.6

NOTE: The dissimilarity index is a measure of the percentage of scientists and engineers in a group who would need to switch occupational fields to match the percentage distribution by occupation of a referent group. The index is calculated as the sum of the absolute difference between the percentage of scientists and engineers in a particular group working in each occupational field and the percentage of scientists and engineers in the referent group working in each occupational field, divided by 2. The referent group for women was men, the referent group for each racial/ethnic group was whites, and the referent group for persons with disabilities was persons without disabilities.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

of other occupations. Specifically, they were 4 percent of social scientists but 11 percent of engineers and 12 percent of computer scientists. Blacks accounted for a higher percentage of social scientists (5 percent) and mathematical scientists (5 percent) than they were of other occupations: they were 1 percent of physicists and political scientists. Hispanics were more proportionally distributed among occupations. They were roughly 2 to 4 percent of scientists and engineers in most occupations.

A dissimilarity index similar to that used for men and women was constructed to measure the amount of similarity or dissimilarity in the distributions of racial/ethnic groups by occupation. The dissimilarity index was highest for American Indians—23.8 percent of American Indians would have to switch their occupation to match that of white scientists and engineers. (See text table 5-6.) The index was lowest for Hispanics—10.2 percent would have to switch their occupation to match the occupational distribution of white scientists and engineers.

Minority women

Higher percentages of female scientists and engineers than of males within each racial/ethnic group were computer scientists, biological scientists, and social scientists; smaller percentages were engineers. Close to half of all male scientists and engineers were in engineering occupations. Among scientists, a higher percentage of men than of women were computer scientists. Asian women differ from women in other racial/ethnic groups in that a relatively small proportion (7 percent) were social scientists, compared with 23 percent or more of women in other racial/ethnic groups. (See appendix table 5-3.)

Persons with disabilities

Persons with and without disabilities do not differ greatly by occupation: 10 percent of both were life scientists and 8 percent of both were physical scientists in 1997. (See appendix table 5-4.) Similar percentages of scientists and engineers with and without disabilities were engineers (42 versus 41 percent), social scientists (11 versus 10 percent), and computer scientists (25 versus 28 percent).

The dissimilarity index for persons with disabilities was fairly low—7.6, indicating that 7.6 percent of scientists and engineers with disabilities would have to switch their occupation to match that of their counterparts without disabilities.[7] (See text table 5-6.)

Labor force participation, employment, and unemployment

Women

The labor force participation rates of men and women with current or former science and engineering occupations were similar in 1997—87 percent of women and 88 percent of men were in the labor force (that is, employed or seeking employment). Among those in the labor force, the unemployment rates[8] of female and male scientists and engineers differed: 2.2 percent of women and 1.4 percent of men were unemployed in 1997. (See text table 5-7.) The unemployment rates of women were higher than those of men in each major science and engineering occupation and within most major age groupings. (See appendix tables 5-7 and 5-8.)

Reasons for not working (whether not in the labor force or unemployed) differ in some respects by sex. Women were more likely than men to cite family responsibilities (38 percent versus 2 percent), and men were more likely than women to cite retirement (79 percent versus 23 percent). (See appendix table 5-9.) These differences reflect variations in the age distributions of men and women as well as differing family responsibilities.[9]

Similarly, a higher percentage of female than of male scientists and engineers are employed part time. Of those who were employed, 17 percent of women and 5 percent of men were employed part time. (See appendix table 5-7.) Women who were employed part time were less likely than men to have preferred full-time employment. (See appendix table 5-10.). Also, women who were employed part time were far more likely than men to cite family responsibilities as the reason for their part-time employment: 44 percent of the women working part time and 10 percent of the men cited family responsibilities as the reason for their work status. (See appendix table 5-10.) Thirty-seven percent of men and 5 percent of women cited retirement as the reason for part-time employment. As was the case with unemployment, variations in age distribution of men and women, as well as varying family responsibilities, are factors in part-time employment choices.

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[7] The dissimilarity index is a measure of the percentage of scientists and engineers with disabilities who would need to switch occupations to match the occupational distribution of scientists and engineers without disabilities. The index is calculated as the sum of the absolute difference between the percentage of scientists and engineers with disabilities working in each occupation and the percentage of scientists and engineers without disabilities working in each occupation divided by 2.

[8] The unemployment rate is the ratio of those who are unemployed and seeking employment to the total labor force. Those who are not in the labor force are excluded from the denominator.

[9] See NSF 1996, p. 66, for a discussion of the relationship between unemployment, part-time employment, and the presence of children under the age of 18.

Minorities

Minority scientists and engineers were more likely than whites to be in the labor force (i.e., employed or looking for employment). Between 91 and 94 percent of black, Asian, Hispanic, and American Indian scientists and engineers were in the labor force in 1997, compared with 87 percent of white scientists and engineers. (See text table 5-7 and appendix table 5-7.) Age variations are related to these differences in labor force participation. White scientists and engineers were older, on average, than scientists and engineers of other racial/ethnic groups: 14 percent of white scientists and engineers were 55 or older in 1997, compared with between 7 and 10 percent of Asians, blacks, and Hispanics. (See appendix table 5-5.) Among those in the same age group, the labor force participation rates of white and minority scientists and engineers were similar. (See appendix table 5-7.)

Text table 5-7.
Labor force participation rates and unemployment rates of scientists and engineers, by sex and race/ethnicity: 1997

Sex and race/ethnicity	Labor force participation rate [1]	Unemployment rate [2]
Total	87.8	1.5
Women	86.9	2.2
Men	88.0	1.4
White, non-Hispanic	86.9	1.4
Asian/Pacific Islander	92.8	2.0
Black, non-Hispanic	91.0	1.9
Hispanic	92.4	2.6
American Indian/Alaskan Native	94.5	1.4
White women	86.0	2.0
Nonwhite women	90.4	2.8
White men	87.1	1.3
Nonwhite men	93.1	1.9
Persons without disabilities	89.2	1.5
Persons with disabilities	68.8	2.7

The labor force participation rate is the ratio of those who are either employed or who are unemployed and seeking employment to all scientists and engineers.

[2] The unemployment rate is the ratio of those who are unemployed and seeking employment to the total labor force. Those who are not in the labor force are excluded from the denominator.

NOTES: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Although nonwhite scientists and engineers were less likely to be out of the labor force than whites, among those who were in the labor force, nonwhite scientists and engineers from some racial/ethnic groups were more likely to be unemployed. In 1997, the unemployment rate of white scientists and engineers was significantly lower than that of Hispanics and Asians. (See text table 5-7 and appendix table 5-7.) The unemployment rate for whites was 1.4 percent, compared with 2.6 percent for Hispanics, 2.0 percent for Asians, and 1.9 percent for blacks.

Minority women

Female Hispanic and Asian scientists and engineers were more likely (90 and 92 percent, respectively) than their white counterparts (86 percent) to be in the labor force. (See appendix table 5-8.) Higher percentages of white women (18 percent) and Hispanic women (17 percent) than of black women (9 percent) or Asian women (8 percent) were employed part time. Because of small sample sizes, it is not possible to examine participation in the labor force for these groups within age categories.

The unemployment rate for white women scientists and engineers was lower than the unemployment rate for all other women: 2.0 percent of white women and 2.8 percent of nonwhite women were unemployed in 1997. (See appendix table 5-8.)

Persons with disabilities

The labor force participation rates of scientists and engineers with and without disabilities were quite different. Almost one-third of scientists and engineers with disabilities were out of the labor force compared with 11 percent of those without disabilities. (See text table 5-7 and appendix table 5-11.) Age accounts for some, but not all, of these differences in labor force participation. Scientists and engineers with disabilities were older than those without disabilities: 46 percent of those with disabilities were 55 or older compared with 19 percent of those without disabilities; older scientists and engineers were likely to be out of the labor force due to retirement. Age, however, does not explain all of the differences in labor force participation. Within age categories, scientists and engineers with disabilities were still more likely than those without to be out of the labor force. For example, among those aged 35 to 44, 8 percent of scientists and engineers with disabilities were out of the labor force compared with 4 percent of those without disabilities. Among those 55 or older, 60 percent of scientists and engineers with disabilities were out of the labor force compared with 40 percent of those without disabilities.

Although age accounts for some of the tendency for persons with disabilities to be out of the labor force, chronic illness or permanent disability is also a factor. The primary reason for not working for both persons with and without disabilities was retirement (78 and 62 percent, respectively), but 19 percent of persons with disabilities and 2 percent of those without cited chronic illness or permanent disability. (See appendix table 5-9.)

Among those in the labor force, persons with disabilities were more likely than those without to be unemployed. The 1997 unemployment rate for scientists and engineers with disabilities was 2.7 percent compared with 1.5 percent for those without disabilities. (See text table 5-7 and appendix table 5-11.)

Employed scientists and engineers with disabilities were also more likely than those without disabilities to be employed part time: 11.3 percent versus 7.6 percent in 1997.

Sector of employment

Women

Among all employed scientists and engineers, women were less likely than men to be employed in business or industry—46 versus 63 percent—and more likely to be employed in educational institutions—27 percent versus 15 percent of men. These variations by sector, however, primarily stem from differences in occupation. Women were less likely than men to be engineers or physical scientists, occupations that tend to be employed in business or industry. Within occupations, the percentages of men and women employed in industry were similar. For example, among physical scientists, 50 percent of women and 48 percent of men were employed in private for-profit business or industry. (See appendix table 5-12.)

Minorities

Asians were more likely than other racial/ethnic groups to be employed in business or industry. Among employed scientists and engineers in 1997, 64 percent of

Preferences for Academic Versus Industrial Employment Among Recent Recipients of Doctoral Degrees in Science and Engineering

When they begin their doctoral programs in science and engineering, men and women are about equally likely to want to work in academia. Among men and women who received a doctoral degree in science and engineering between 1990 and 1996, about 61 percent of both reported they wanted to work in 4-year colleges or universities when they began their doctoral program. Aside from their academic employment preference, men were more likely than women to want to work in business or industry; women were more likely than men to want to work in "other" employment (including nonprofit organizations, elementary or secondary schools, and self-employment). (See text table 5-8.)

Actual employment outcomes for men and women receiving a doctoral degree in science and engineering between 1990 and 1996 differed from these stated preferences, particularly for men. Within almost all major science and engineering occupations, women were more likely than men to be employed in colleges or universities, and men were more likely than women to be employed in business or industry. The differences between the sector they preferred to work in as they began their doctoral program and the sector they actually worked in after completion of the doctorate were more pronounced for men than for women in colleges or universities and in business or industry. In most doctorate fields, the percentages of women who actually worked in either academia (54.5 percent across all fields) or business/industry (19.8 percent) were closer to the percentages reporting that they desired employment in those sectors (61.2 and 17.7 percent) at the time they started their doctoral program than was the case for men. The percentage of men who actually worked in colleges or universities was smaller than the percentage that desired employment in that sector (44.5 versus 61.0 percent), and the percentage of men who actually worked in business/industry was larger than the percentage that desired employment in that sector (37.7 versus 27.7 percent). Women were thus more likely than men to realize their desire for employment in academia.

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Text table 5-8.

Desired versus actual sector of employment for recent science and engineering doctorate recipients, by field of doctorate and sex: 1997

Sector and field of doctorate	Desired sector		Actual sector		Difference	
	Women	Men	Women	Men	Women	Men
College/university[1]						
Total S&E	61.2	61.0	54.5	44.5	6.7	16.5
Computer & information science	73.4	62.0	51.0	35.3	22.4	26.8
Mathematics	85.2	85.0	81.3	56.6	3.8	28.4
Biological/agricultural	72.0	74.0	66.3	63.5	5.6	10.5
Health sciences	70.6	65.5	60.4	57.5	10.2	8.0
Physical and related	54.0	57.1	51.0	39.4	3.1	17.7
Social sciences	77.1	80.3	68.7	63.0	8.4	17.3
Psychology	40.9	45.0	36.9	36.9	4.0	8.1
Engineering	49.4	45.8	34.8	26.3	14.6	19.4
Business/industry[2]						
Total S&E	17.7	27.7	19.8	37.7	2.1	10.0
Computer & information science	22.4	33.5	39.1	56.2	16.7	22.7
Mathematics	11.8	12.3	13.6	28.1	1.9	15.8
Biological/agricultural	20.0	18.3	14.1	19.5	6.0	1.2
Health sciences	10.7	19.6	10.5	18.3	0.1	1.2
Physical and related	40.3	35.3	37.7	44.4	2.5	9.0
Social sciences	6.0	4.7	8.8	14.2	2.8	9.5
Psychology	9.4	11.0	18.4	21.3	9.1	10.3
Engineering	38.6	45.8	51.9	61.6	13.3	15.8
Government						
Total S&E	3.5	4.4	9.0	9.3	5.4	4.9
Computer & information science	2.0	0.8	5.9	3.9	3.8	3.1
Mathematics	0.4	0.9	0.2	5.1	0.2	4.2
Biological/agricultural	3.7	3.7	10.6	9.9	6.9	6.2
Health sciences	6.5	8.4	11.8	12.1	5.3	3.7
Physical and related	2.7	5.4	5.8	9.5	3.1	4.2
Social sciences	5.9	7.6	6.9	10.6	1.0	3.0
Psychology	1.5	2.6	10.3	14.4	8.8	11.8
Engineering	4.0	4.1	6.8	8.0	2.8	3.9
Other[3]						
Total S&E	17.6	7.0	16.8	8.6	0.8	1.6
Computer & information science	2.2	3.7	4.0	4.7	1.8	1.0
Mathematics	2.7	1.8	4.9	10.2	2.2	8.4
Biological/agricultural	4.3	3.9	9.0	7.1	4.7	3.2
Health sciences	12.3	6.5	17.3	12.1	5.0	5.6
Physical and related	3.0	2.2	5.5	6.7	2.5	4.5
Social sciences	10.9	7.5	15.6	12.3	4.7	4.8
Psychology	48.2	41.5	34.4	27.5	13.9	14.0
Engineering	8.0	4.3	6.5	4.1	1.5	0.2

[1] Desired sector is listed as "college or university" which may include 2-year colleges, whereas actual sector is limited to "4-year colleges or universities."

[2] Desired sector is listed as "business/industry" whereas actual sector is listed as "private for-profit company or business."

[3] Includes nonprofit organizations, elementary or secondary schools, those who are self-employed, and other sector.

NOTE: Recent science and engineering doctorate recipients are those who earned their degrees between June 1990 and June 1996.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 Survey of Doctorate Recipients.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Asian scientists and engineers, compared with 53 percent of black, 55 percent of Hispanic, 47 percent of American Indian, and 59 percent of white scientists and engineers, were employed in for-profit business or industry. (See appendix table 5-12.) Because Asians were more likely to be engineers, they were also more likely to be employed by private for-profit employers. Blacks and American Indians, on the other hand, were more likely to be social scientists, who are less likely to find employment in business or industry; they were less likely to be engineers, who are more likely to find employment in business or industry.

Black, Hispanic, and American Indian scientists and engineers were also more likely than other groups to be employed in Federal—including military—state, or local government: 22 percent of black, 16 percent of Hispanic, and 19 percent of American Indian scientists and engineers were employed in government in 1997, compared with 13 percent of white and 12 percent of Asian scientists and engineers.

Persons with disabilities

Scientists and engineers with disabilities were less likely than those without to be employed in for-profit business or industry: 53 versus 60 percent in 1997. They were also somewhat less likely to be employed in academia than their counterparts without disabilities: 18 versus 20 percent. (See appendix table 5-12.)

Employment in educational institutions: Type of employing school, rank, and tenure

Women

Women scientists and engineers employed in educational institutions differ from their male counterparts in terms of the type of school by which they are employed and their academic rank and tenure. For instance, among all scientists and engineers employed by this sector in 1997, women were more likely than men to be in primary or secondary schools (11 versus 4 percent). (See appendix table 5-13.) This difference was particularly notable among those with master's degrees. Among scientists and engineers employed in educational institutions whose highest degree was a master's, 21 percent of women and 8 percent of men were employed in primary or secondary schools.

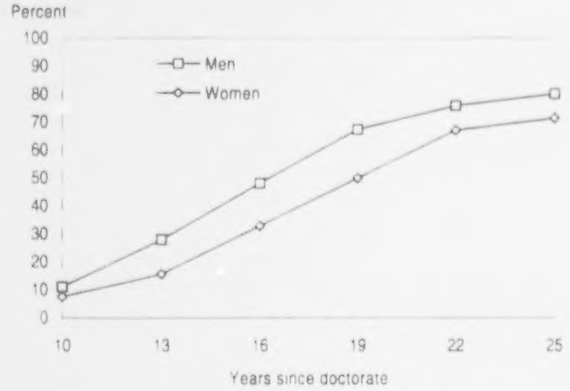
Female scientists and engineers were also more likely than their male counterparts to be employed in 2-year colleges (12 versus 9 percent). (See appendix table 5-13.) These differences in type of educational employer are attributable to differences in highest degree: 69 percent of female and 52 percent of male scientists and engineers employed in educational institutions have a bachelor's or master's degree as their highest degree. More than half of both men and women who are employed in 2-year colleges are employed part time (NSF 1996.)

On the other hand, male and female doctoral science and engineering faculty (full, associate, and assistant professors and instructors) are employed by similar types of institutions. (See appendix table 5-14.) However, within 4-year colleges and universities, female scientists and engineers hold fewer high-ranked positions than do their male counterparts. Women were less likely than men to be full professors and more likely than men to be assistant professors. Among full-time ranked doctoral scientists and engineers, 51 percent of men and 24 percent of women were full professors. Part of this difference in rank is related to age, but differences in the percentages that are full professors exist even after controlling for years since doctorate receipt. (See figure 5-2 and appendix table 5-15.)

Women are also less likely than men to be tenured. Thirty-five percent of female scientists and engineers employed full time in 4-year colleges and universities had tenure compared with 60 percent of men. As was the case with rank, some—but not all—of the differences in tenure may be attributable to differences in years since doctorate receipt. Among those who received their doctorates between 10 and 19 years ago, 58 percent of women and 72 percent of men were tenured. (See appendix table 5-16.)

Among ranked doctoral scientists and engineers employed full time in 4-year colleges or universities, women are as likely as their male colleagues to be supported by

Figure 5-2.
Percentage of full-time ranked doctoral scientists and engineers in 4-year colleges or universities who are full professors, by sex and years since doctorate: 1997



NOTE: Because of small sample sizes, a three-year average is used for years since doctorate.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Federal grants or contracts. Specifically, the work of 34 percent of women and 38 percent of men was supported by Federal grants or contracts. (See appendix table 5-17.)

Minorities

Variations exist across racial/ethnic groups in terms of type of academic employer. Among all scientists and engineers employed by the educational sector in 1997, Asians were less likely than other groups to be employed in primary or secondary schools (1 percent versus between 7 and 10 percent of other groups) or in 2-year colleges (3 percent versus between 10 and 15 percent of other groups). (See appendix table 5-13.) Asian doctoral scientists and engineers also differ from other groups in the Carnegie classification of their academic employer. These doctorate-holders are more likely than their black or Hispanic counterparts to be employed by Research I universities. For their part, black doctoral scientists and engineers are generally less likely than other groups to be employed by Research I universities and more likely than other groups to be employed by Comprehensive I colleges or universities. (See appendix table 5-14.)

Racial/ethnic groups differ in rank and tenure as well. Among full-time ranked doctoral scientists and engineers in 4-year colleges or universities, 37 percent of Asians and 32 percent of both blacks and Hispanics were full professors, compared with 47 percent of whites. These differences are partly related to variations in the number of years since doctorate award. Black, Hispanic, and Asian scientists and engineers tended to be more recent doctorate recipients, on average, than white and American Indian scientists and engineers. When years since doctorate are accounted for, differences in rank and tenure were reduced. Among full-time ranked doctoral scientists and engineers in 4-year colleges or universities who received doctorates between 10 and 19 years ago, 44 percent of Asians and 40 percent of whites and Hispanics were full professors. (See appendix table 5-15.) Among black faculty in that age group, however, 31 percent were full professors.

Black, Hispanic, and Asian doctoral scientists and engineers in 4-year colleges or universities were also less likely than whites to be tenured: 46 percent of blacks, 48 percent of Hispanics, and 37 percent of Asians compared with 57 percent of whites. (See appendix table 5-16.) These tenure differences are also related to differences in years since doctorate receipt. Among scientists and engineers who received their doctorate 10 to 19 years ago, 71 percent of Hispanics, 69 percent of blacks, 66 percent of Asians, and 69 percent of whites were tenured.

Black and American Indian doctoral scientists and engineers employed in 4-year colleges or universities were less likely than other groups to have received Federal grants or contracts. Twenty-nine percent of black and 22 percent of American Indian doctoral full, associate, or assistant professors employed full time in colleges or universities were supported by Federal contracts or grants compared with 37 percent of their white and Hispanic counterparts, and 42 percent of Asians. (See appendix table 5-17.) These differences may be related to the variations in type of academic employer discussed earlier in this chapter.

Minority women

As previously noted, female scientists and engineers are less likely than men to be full professors, and minorities are less likely than whites to be full professors. Not surprisingly then, black, Hispanic, and Asian women are less likely than white women and less likely than men of any racial/ethnic group[10] to be full professors. (See appendix table 5-18.) These rank and tenure variations are once again at least partly related to differences in years since doctorate.

Tenure differences are related to rank. Black, Hispanic, and Asian women are less likely than white women or men of any racial/ethnic group to be tenured. Twenty-nine percent of both black and Hispanic women and 17 percent of Asian women, compared with 38 percent of white women, 63 percent of white men, and between 43 and 53 percent of Hispanic, black, and Asian men held tenure in 1997. (See appendix table 5-19.) The small percentage of Asian women who were tenured is also related to differences in academic position. A relatively larger percentage of Asian men and women were in positions for which tenure does not apply—for example, postdoctoral fellows and nonfaculty research appointments.

Persons with disabilities

Among Ph.D.-holding scientists and engineers employed full time in 4-year colleges and universities, those who have disabilities are more likely than those without disabilities to be full professors and to be tenured. (See appendix tables 5-15 and 5-16.) These differences in rank and tenure between persons with and without disabilities are—as was noted in the discussions of women and racial/ethnic groups—again related to differences in the number of years since doctorate award. Because the incidence of disability increases with age, scientists and engineers with disabilities tend to be older and to have more years of professional work experience than those without disabilities. Among doctoral scientists and engineers employed full time in 4-year colleges or universities with similar years since receipt of doctorate, rank and tenure status were more similar. For example, of those who received their doctorates between 20 and 29 years ago, 85 percent of those without disabilities and 90 percent of those with disabilities were tenured. (See appendix table 5-16.)

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[10] This excludes American Indians, for whom data are unreliable due to small sample size.

Doctoral scientists and engineers with disabilities who were employed full time in 4-year colleges or universities (29 percent) were less likely than those without disabilities (38 percent) to have been supported by Federal grants or contracts. (See appendix table 5-17.)

Nonacademic employment

Women

Within for-profit business or industry, occupational differences are related to variations in primary or secondary work activities between male and female scientists and engineers.[11] For example, men are more likely than women to be engineers and physical scientists, occupations that frequently entail research and development activities. Therefore, it is not surprising that the primary or secondary work activity of female scientists and engineers in business or industry differs from that of their male counterparts: 45 percent of women and 58 percent of men reported research and development as their primary or secondary work activity in 1997. Women, however, are about as likely as men to be in management or administration—43 percent of women and 47 percent of men cited management or administration as their primary or secondary work activity in 1997. (See appendix table 5-20.) Note, however, that among younger scientists and engineers, similar percentages of men and women were in management, while among older scientists and engineers, a higher percentage of men than of women were so engaged. More specifically, among those ages 45 to 54, 50 percent of men and 42 percent of women were in management in 1997.

Women who were supervisors had, on average, fewer total (direct plus indirect) subordinates than did men. The median number of total subordinates for women was 7 compared to 10 for male supervisors. (See appendix table 5-21.) The disparity in number of subordinates is most pronounced among older age groups: among those between the ages of 45 and 54, the median number of subordinates was 8 for women and 14 for men.

Female scientists and engineers in government are less likely than men to be primarily or secondarily engaged in management activities: 46 percent versus 53 percent in 1997. (See appendix table 5-22.)

Minorities

Racial/ethnic groups also differ in some respects in their primary or secondary work activity in for-profit business or industry. Black and Asian scientists and engineers are more likely than other groups to be engaged in computer applications—52 percent of both black and Asian, compared with 41 percent of white and 40 percent of Hispanic, scientists and engineers reported this primary or secondary activity in 1997. (See appendix table 5-20.) Blacks and Asians also are less likely than other groups to be engaged primarily or secondarily in management or administration (41 percent of black and 37 percent of Asian compared with 47 percent of white and 49 percent of Hispanic scientists and engineers). Age differences do not explain this variation in managerial activity. Among 35- to 44-year-olds, blacks and Asians remain less likely to be engaged in management or administration—33 percent of Asians and 42 percent of blacks, compared with 48 percent of whites and Hispanics, were in management or administration in 1997. Among supervisory scientists and engineers, Asians have fewer subordinates than do scientists and engineers from most other racial/ethnic groups. The median number of direct and indirect subordinates was 5 for Asian, 5 for American Indian, 10 for Hispanic and white, and 12 for black scientists and engineers in 1997. (See appendix table 5-21.)

In the government sector, Asian scientists and engineers—regardless of age—are, once again, less likely than scientists and engineers in other racial/ethnic groups to be engaged in management or administration. Forty-four percent of Asian scientists and engineers employed in government, compared with 57 percent of blacks, 55 percent of Hispanics, and 52 percent of whites, reported management or administration as their primary or secondary work activity. (See appendix table 5-22.)

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[11] Reinterview surveys used to evaluate data quality found that while respondents are reasonably consistent in identifying their work activities, they are not consistent in ordering them as either primary or secondary. Therefore, primary and secondary work activities are combined in this analysis.

Minority women

Minority female scientists and engineers employed in business or industry report, for the most part, work activities similar to those of white women. Asian women are, however, more likely than women from other racial/ethnic groups to be engaged in research and development and less likely to be engaged in management or administration. In 1997, 52 percent of Asian women compared with 42 to 49 percent of white, black, and Hispanic women were primarily or secondarily engaged in research and development. Thirty-four percent of Asian women compared with from 40 to 50 percent of women in other racial/ethnic groups were engaged primarily or secondarily in management or administration. (See appendix table 5-23.) Regardless of racial/ethnic group, women were more likely than men to report computer applications as a primary or secondary work activity and less likely to report research and development activity.

Persons with disabilities

The type of work that scientists and engineers with disabilities do in for-profit business or industry is similar to that performed by those without disabilities. The primary or secondary work activity of 53 percent of scientists and engineers with disabilities is research and development, compared with 56 percent for those without disabilities. Forty-four percent of scientists and engineers with disabilities and 46 percent of those without were engaged primarily or secondarily in management or administration in 1997. (See appendix table 5-20.) Among those with supervisory responsibilities, persons with and without disabilities had about the same number of subordinates—a mean of 11 and 10 subordinates, respectively. (See appendix table 5-21.) Among scientists and engineers employed in government, 51 percent of those with disabilities and 52 percent of those without were primarily or secondarily engaged in management or administration. (See appendix table 5-22.)

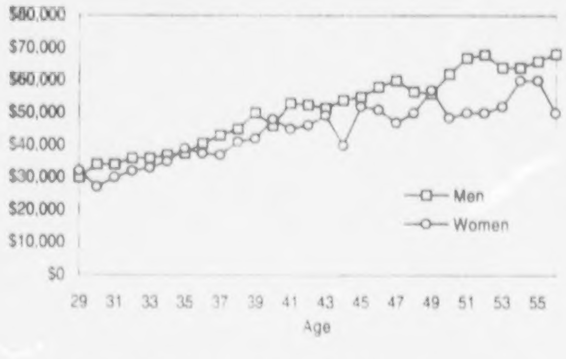
Salaries

Many factors explain the various differences that exist between the annual salaries of men and women, among racial/ethnic groups, and between persons with and without disabilities employed full time in science and engineering. Three of the most important of these are age, occupation, and highest degree level. Other reports (NSF 1996 and NSF 1999b) provide more detailed explanations of the variety of factors influencing salaries for men and women; the following briefly delineates the issue.

Women

Full-time employed female scientists and engineers generally earn less than men, but these salary differences are due primarily to differences in age, occupation, and highest degree attained. Female scientists and engineers are younger, on average, than men and are less likely than men to be in computer science or engineering—occupations that command higher salaries. The 1997 overall median salary for full-time female scientists and engineers was $47,000; this was much lower than that for men ($58,000), but within occupations and within younger age categories, the median salaries of men and women were more alike. (See appendix table 5-24.) For example, in 1997, among physical scientists aged 20 to 29 with a bachelor's degree, the median salary for women was $27,000; for men it was $29,000. With increasing age, however, the gap in salaries between male and female scientists widens in both the education and business sectors. (See figures 5-3 and 5-4.) On the other hand, for engineers employed in business or industry, men's and women's salaries keep pace with increasing age through age 40.[12] (See figure 5-5.)

Figure 5-3.
Median salary of doctoral scientists employed full time in 4-year colleges or universities, by sex and age: 1997



SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

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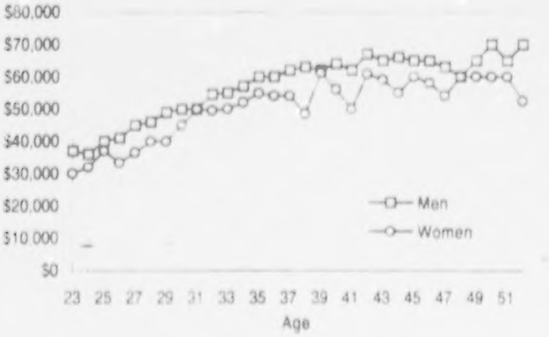
[12] Salary comparisons for those older than age 40 were not possible because the number of women engineers in the sample who were older than age 40 was too small.

Figure 5-4.
Median salary of scientists employed full time in business or industry, by sex and age: 1997



SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

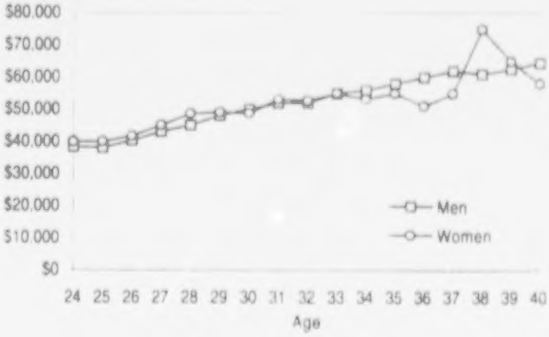
Minorities

Salaries for scientists and engineers differ across racial/ethnic groups. Among all scientists and engineers, the median salaries by racial/ethnic group were $55,000 for whites, $55,000 for Asians, $50,000 for Hispanics, $48,000 for blacks, and $46,000 for American Indians. Within science occupations and age categories, median salaries of scientists and engineers were often lower for blacks, Hispanics, and American Indians than for other groups. (See appendix table 5-25.)

Minority women

Median annual salaries of female scientists and engineers of all racial/ethnic groups were lower than those of male scientists and engineers; this pattern also held true across most broad occupations and age groups. For example, among computer or mathematical scientists in the 20- to 29-year-old age group, median salaries for women were $46,000 for Asians, $40,000 for whites, $38,000 for Hispanics, and $35,000 for blacks. (See appendix table 5-26.) Median salaries for male computer or mathematical scientists in the same age group were $49,000 for Asians, $44,500 for whites, $41,000 for Hispanics, and $38,000 for blacks, respectively. Differences in highest degree (as well as other factors, see NSF 1996) are also likely to influence salaries; however, no adjustment by highest degree was possible for this analysis due to small sample size.

Figure 5-5.
Median salary of engineers employed full time in business or industry, by sex and age: 1997



NOTE: Salary comparisons for those older than age 40 were not possible because the number of women engineers in the sample who were older than age 40 was too small.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

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Persons with disabilities

Median salaries of scientists and engineers with disabilities are similar to those for scientists and engineers without disabilities. Among all scientists and engineers, the median salary for those with disabilities is $56,000; for those without, it is $55,000. Salaries differ little within occupations and age groups. For example, the median salary for engineers with a bachelor's degree and between the ages of 20 and 29 is $42,800 for those with disabilities and $40,000 for those without disabilities. (See appendix table 5-27.)

References

National Science Foundation, Division of Science Resources Studies (NSF). 1996. *Women, Minorities, and Persons With Disabilities in Science and Engineering: 1996*. NSF 96-311. Arlington, VA.

———. 1999a. "Healthy Economy Yields Even Lower Unemployment Rate for Doctoral Scientists and Engineers." NSF 99-340. Arlington, VA.

———. 1999b. "How Large Is the Gap in Salaries of Male and Female Engineers?" NSF 99-352. Arlington, VA.

APPENDIX A

TECHNICAL NOTES

TECHNICAL NOTES

General information

The data in this report come from many sources, including surveys conducted by the National Science Foundation (NSF) and other Federal agencies, and by non-Federal organizations. Many methods of data collection are represented, such as universe surveys, sample surveys, and compilations of administrative records. Users should thus take great care when comparing data from different sources. These data often will not be strictly comparable due—among other things—to differences in definitions, survey procedures, and phrasing of questions.

Survey accuracy is determined by the joint effects of "sampling" and "nonsampling" errors. In all of the surveys that are sources of data for this report, efforts are made to minimize these errors. Sampling errors arise because estimates based on a sample will differ from the figures that would have been obtained if a complete census had been taken.

All surveys, whether universe or sample, are also subject to nonsampling errors; these can arise from design, reporting, and processing errors as well as from errors due to faulty response or nonresponse. Nonsampling errors include respondent-based events, such as some respondents interpreting questions differently from other respondents; respondents making estimates rather than giving actual data; and respondents being unable or unwilling to provide complete, correct information. Errors can also arise during the processing of responses, such as recording and keying errors.

Racial/ethnic information

Data collection on and reporting of the race/ethnicity of individuals pose several additional problems. First, both the naming of population subgroups and their definitions often have changed over time. Because this report draws on data from many sources, different terminology may have been used to obtain the various statistics presented here. Efforts have been made to maintain consistency throughout this text, but in some data reporting, it has been necessary to use distinct terminology that does not match that used in other compilations.

Second, many of the groups of particular interest are quite small, so that it is difficult to measure them accurately without universe surveys. In some instances, sample surveys may not have been of sufficient scope to permit calculation of reliable racial/ethnic population estimates; consequently, results are not shown for all groups. The Bureau of the Census's Current Population Survey, for example, cannot provide data on American Indians. Data on this population are available only from the decennial census. Another issue related to race/ethnicity is the fact that it is easy to overlook or minimize heterogeneity within subgroups when only a single statistic is reported for a total racial/ethnic group.

Third, data on race/ethnicity are often based on self-identification. These data are less reliable for certain racial/ethnic groups than for others. Data collected at two points in time indicate that self-identification of American Indians is much less reliable than self-identification of other racial/ethnic groups.[1]

Information about persons with disabilities

Data on persons with disabilities in science and engineering are seriously limited for several reasons. First, the operational definitions of "disability" vary and include a wide range of physical and mental conditions. Different sets of data have used different definitions and thus are not totally comparable. The Americans with Disabilities Act of 1990 (ADA) encouraged progress toward standard definitions. Under ADA, an individual is considered to have a disability if he or she has a physical or mental impairment that substantially limits one or more major life activities, has a record of such impairment, or is regarded as having such an impairment. ADA also contains definitions of specific disabilities.

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[1] U.S. Bureau of Labor Statistics, *A Test of Methods for Collecting Racial and Ethnic Information* (Washington, DC: U.S. Department of Labor, 1995).

Second, data about disabilities frequently are not included in comprehensive institutional records (e.g., in registrar records in institutions of higher education). If included at all in institutional records, such information is likely to be kept only in confidential files at an office responsible for providing special services to students. Institutions are unlikely to have information regarding any persons with disabilities who have *not* requested special services. In the case of elementary/secondary school programs receiving funds to provide special education, however, counts for the entire student population identified as having special needs are centrally available.

Third, information on persons with disabilities gathered from surveys is often obtained from self-reported responses. Typically, respondents are asked if they have a disability and to specify what kind of disability it is. Resulting data therefore reflect individual perceptions rather than objective measures.

An example—the attempt to provide estimates of the proportion of the undergraduate student population with disabilities—shows how these factors coalesce. Self-reported data from the undergraduate student population, queried on a survey to ascertain patterns of student financial aid, suggest that about 10 percent of this population report having some disability. Estimates from population surveys of higher education institutions, in contrast, place the estimate much lower, between 1 and 5 percent. Whether this discrepancy is the result of self-perception, incomplete reporting, nonevident disabilities, or differing definitions is difficult to ascertain.

In the final analysis, although considerable information is available on persons with disabilities and their status in the educational system and in the science and engineering workforce, it is often not possible to compare the numbers of persons with disabilities from different sources.

Primary non-NSF sources

The following non-NSF sources were used for data tables in this report.

The Integrated Postsecondary Education Data System Survey: Fall Enrollment, Completions, and Institutional Characteristics

Contact: National Center for Education Statistics
U.S. Department of Education
1990 K Street, NW
Washington, DC 20006
(202) 502-7300

http://nces.ed.gov/ipeds/

The Integrated Postsecondary Education Data System (IPEDS) Survey began in 1986 as a supplement to and replacement for the Higher Education General Information Survey (HEGIS), which began in 1966. HEGIS annually surveyed institutions listed in the current National Center for Education Statistics's (NCES's) *Education Directory of Colleges and Universities*; IPEDS surveys all postsecondary institutions, including universities and colleges and the institutions that offer technical and vocational education. The higher education portion is a census of accredited 2- and 4-year colleges; technical and vocational schools are surveyed on a sample basis.

IPEDS consists of several integrated component surveys that obtain information on types of institutions where postsecondary education is available, student participants, programs offered and completed, and the human and financial resources involved in the delivery of postsecondary education. IPEDS includes surveys of institutional characteristics; fall enrollment, including student age and residence; fall enrollment in occupationally specific programs; completions; finance; staff; salaries of full-time instructional faculty; and academic libraries.

The **IPEDS Institutional Characteristics Survey** provides the basis for the universe of institutions reported in the *Education Directory of Colleges and Universities*. The universe includes institutions that met certain accreditation criteria and offered at least a 1-year program of college-level studies leading toward a degree. Each fall, institutions listed in the previous year's directory are asked to update information on their school's characteristics.

The **IPEDS Completions Survey** replaces and extends the HEGIS Degrees and Other Formal Awards Conferred Survey. It is administered to a census of institutions offering degrees at the bachelor's degree level and above, all 2-year institutions, and a sample of less-than-2-year institutions.

The **IPEDS Fall Enrollment Survey** replaces and extends the previous HEGIS surveys of enrollment in institutions of higher education.

The National Postsecondary Student Aid Study

Contact:
National Center for Education Statistics
U.S. Department of Education
1990 K Street, NW
Washington, DC 20006
(202) 502-7300

http://nces.ed.gov/npsas/

The National Postsecondary Student Aid Study (NPSAS) was established by NCES to collect information concerning financial aid allocated to students enrolled in U.S. postsecondary institutions. NPSAS was first administered in the fall of the 1986–87 academic year. NCES conducted subsequent cycles of NPSAS for the 1989–90, 1992–93, and 1995–96 school years. The 1989–90 cycle contained enhancements to the methodology used in the 1987 cycle. Estimates from the 1996 NPSAS sample are generally comparable to those from the 1993 and 1990 samples but not to those from the 1987 sample.

The 1995–96 survey gathered information from about 60,000 undergraduate and graduate students selected from registrar lists of enrollees at about 800 postsecondary institutions. The sample included students who did and did not receive financial aid, as well as students' parents. Student information, such as field of study, educational level, and attendance status (part or full time), was obtained from registrar records. Types and amounts of financial aid and family financial characteristics were abstracted from school financial aid records. Parents of students were also sampled to compile data concerning family composition and parental financial characteristics.

Engineering Workforce Commission Survey of Engineering and Technology Enrollments

Contact:
Matt Doster
Engineering Workforce Commission
1111 19th Street, NW
Suite 403
Washington, DC 20036
(202) 296-2237

http://www.aaes.org/ewc/

For 29 years, the Engineering Workforce Commission (EWC) has conducted annual surveys of enrollments in engineering programs. The 1996 report on enrollments in engineering covers 335 institutions including all of those with curricula approved by the Accreditation Board for Engineering and Technology (ABET), as well as data on engineering technology from 285 schools. The response rate to the 1996 survey was 96.1 percent. EWC counts the number of students studying for engineering degrees at all ABET-accredited engineering schools throughout the United States. Historically, EWC has also included schools that are not ABET accredited for a variety of reasons unique to each school. Some such schools are in the process of obtaining ABET accreditation; others have simply asked to be included in the survey. Each year, EWC obtains data from all schools included in the previous year's survey so as to ensure accurate time-series comparisons.

Survey of Income and Program Participation

Contact:
Michael McMahon
Bureau of the Census
U.S. Department of Commerce
Washington, DC 20233
(301) 457-3819

http://www.sipp.census.gov/sipp/

The Survey of Income and Program Participation conducted by the Census Bureau provides information on the economic situation of households and persons in the United States. The survey collects data on basic social and demographic characteristics of persons in households, labor force activity, type and amount of income, participation status in various programs, and various supplementary modules, for example, work history, health characteristics (including disability), assets and liabilities, and education and training.

A combined sample from the 1992 and 1993 panels of the Survey of Income and Program Participation provides the latest available data on the disability status of the noninstitutionalized population of the United States. A supplement containing an extensive set of questions about disability status was included as part of the ninth wave of the 1992 panel and the sixth wave of the 1993 panel. Both of these waves were fielded between September and December 1994. The total sample size for this study was approximately 40,000 interviewed households.

The disability supplements that have been asked in SIPP were designed to be consistent with the ADA definition of disability. The supplements obtain information on the ability to perform specific functional activities (seeing, hearing, having one's speech understood, lifting and carrying, climbing stairs, and walking); certain ADLs or activities of daily living (getting around inside the home, getting in and out of a bed or chair, bathing, dressing, eating, and toileting), and certain IADLs or instrumental activities of daily living (going outside the home, keeping track of money and bills, preparing meals, doing housework, and using the telephone). The survey also collects information on the use of such special aids as wheelchairs and canes, the presence of certain conditions related to mental functioning, and the ability to work at a job or business.

People 15 years old and over were identified as having a disability if they met any of the following criteria:

- Used a wheelchair or were a long-term user of a cane, crutches, or a walker
- Had difficulty performing one or more functional activities (seeing, hearing, speaking, lifting/carrying, using stairs, or walking)
- Had difficulty with one or more activities of daily living (the ADLs included getting around inside the home, getting in or out of bed or a chair, bathing, dressing, eating, and toileting)
- Had difficulty with one or more instrumental activities of daily living (the IADLs included going outside the home, keeping track of money and bills, preparing meals, doing light housework, taking prescription medicines in the right amount at the right time, and using the telephone)
- Had one or more specified conditions (a learning disability, mental retardation or another developmental disability, Alzheimer's disease, or some other type of mental or emotional condition)
- Were limited in their ability to do housework
- Were 16 to 67 years old and limited in their ability to work at a job or business
- Were receiving federal benefits based on an inability to work

People age 15 and over were identified as having a severe disability if they were unable to perform one or more functional activities; needed personal assistance with an ADL or IADL; used a wheelchair; were a long-term user of a cane, crutches, or a walker; had a developmental disability or Alzheimer's disease; were unable to do housework; were receiving federal disability benefits; or were 16 to 67 years old and unable to work at a job or business.

Primary NSF/Division of Science Resources Studies (SRS) sources

The following SRS sources were used for data tables in this publication. Published data tables from these surveys may be accessed on the SRS Web page <http://www.nsf.gov/sbe/srs>. In addition, researchers may access data directly from the SESTAT or WebCASPAR database systems, which can be accessed from the SRS Web page.

Survey of Earned Doctorates

The Survey of Earned Doctorates (SED) has been conducted annually since 1957 for the National Science Foundation, the U.S. Department of Education, the National Endowment for the Humanities, the National Institutes of Health, and the U.S. Department of Agriculture. This is a census survey of all recipients of research doctoral degrees such as Ph.D. or D.Sc.; it excludes the recipients of first-professional degrees such as J.D. or M.D. Therefore, SED data are restricted to research doctorates.

Data for the SED are collected directly from individual doctorate recipients contacted through graduate deans at all U.S. universities. The recipients are asked to provide information on the field and specialty of their degree as well as their personal educational history, selected demographic data, and information on their postgraduate work and study plans. Approximately 95 percent of the annual cohort of doctorate recipients respond to the questionnaire.

Partial data from public sources, such as field of study, are added to the file for nonrespondents. No imputations are made, however, for nonresponse for data not available elsewhere, such as race/ethnicity information. The data for a given year include all doctorates awarded in the 12-month period ending on June 30 of that year. Information on the SED can be found on the Web at <http://www.nsf.gov/sbe/srs/ssed/start.htm>.

Survey of Graduate Students and Postdoctorates in Science and Engineering

The data collected in the Survey of Graduate Students and Postdoctorates in Science and Engineering represent national estimates of graduate enrollment and postdoctoral employment at the beginning of the academic year in all academic institutions in the United States that offer doctorate or master's degree programs in any science or engineering field. Included are data for all branch campuses; affiliated research centers; and separately organized components such as medical or dental schools, schools of nursing, or schools of public health. In fall 1997, the survey universe consisted of 723 reporting units at 601 graduate institutions. Data are collected at the academic department level.

Available information includes full-time graduate students by source and mechanism of support, including data on women and first-year students enrolled full time; part-time graduate students by sex; and citizenship and racial/ethnic background of all graduate students. In addition, detailed data on postdoctorates are available by source of support, sex, and citizenship, including separate data on those holding first-professional doctorates in the health fields; summary information on other doctorate nonfaculty research personnel is also included.

NSF has collected data on graduate science and engineering enrollment and postdoctoral appointees since 1966. From fall 1966 through fall 1971, data from a limited number of doctorate-granting institutions were collected through the NSF Graduate Traineeship Program, which requested data only on those science and engineering fields supported by NSF. Beginning with the fall 1972 survey, this data collection effort was assigned to the Universities and Nonprofit Institutions Studies Group of NSF's Division of Science Resources Studies. It was gradually expanded during the period 1972–75 to include additional science and engineering fields as well as all institutions known to have programs leading to the master's or doctorate degree. Because of this expansion, data for 1974 and earlier years are not strictly comparable with 1975 and later data. Information on the Graduate Student Survey can be found on the Web at <http://www.nsf.gov/sbe/srs/sgss/start.htm>.

NSF's SESTAT data system

In the 1990s, SRS redesigned its data system covering scientists and engineers. Termed SESTAT, the new data system integrates data from three SRS surveys—the Survey of Doctorate Recipients, the National Survey of College Graduates, and the National Survey of Recent College Graduates. The integration of the SESTAT surveys requires complementary sample populations and reference periods, matching survey questions, procedures, and field definitions, as well as weighting adjustments for any overlapping populations.

The surveys provide data on educational background, occupation, employment, and demographic characteristics. These surveys are of individuals and have a combined sample size of about 129,000, representing a population of about 12 million scientists and engineers. SESTAT defines scientists and engineers as those who either received a college degree (bachelor's level or higher) in a science or engineering field or who work as a scientist or engineer. Each of the three surveys that makes up the SESTAT data system collects new data every 2 years. The data reported in this publication were collected in 1997.

SESTAT has as its target population residents of the United States with a baccalaureate degree or higher who, as of the study's reference period, were noninstitutionalized, age 75 or less, and either educated as or working as a scientist or engineer. A baccalaureate-or-higher degree is a bachelor's, master's, doctorate, or professional degree. To meet the scientist or engineer requirement, the U.S. resident had to (1) have at least one baccalaureate-or-higher degree in a science or engineering field or (2) have a baccalaureate-or-higher degree in a non-science or -engineering field but work in a science and engineering occupation as of the survey reference week. For the 1997 SESTAT surveys, the reference period was the week of April 15, 1997.

Some elements of SESTAT's desired target population were not included within the target populations of any of the three SESTAT component surveys. Bachelor's and master's level science and engineering trained personnel missing from the survey frames are predominately:

- residents whose bachelor's and/or master's degrees in science and engineering were received prior to April 1990 or from a foreign institution, who resided outside the United States on April 1, 1990, but not with the U.S. armed forces stationed abroad; or
- residents with no baccalaureate or higher degree in any field as of April 1, 1990, who were awarded a degree in science and engineering after June 1994 by a U.S. institution or after April 1990 by a foreign institution.

Persons with at least a bachelor's degree who are working in science and engineering jobs, but have no degree in a science or engineering field, are underrepresented in the SESTAT database after 1993 because the surveys do not capture new persons entering these occupations who are not educated in science and engineering fields in this decade.

Doctorate-level science and engineering trained personnel missing from the survey frames are predominately:

- residents with doctorates in science and engineering received after June 1996 or from a foreign institution, with no baccalaureate-or-higher degree in any field as of April 1, 1990, and no bachelor's or master's degree in science and engineering received from a U.S. institution between April 1, 1990, and June 1996; or
- residents with doctorates in science and engineering received after June 1996 or from a foreign institution but with no bachelor's or master's science and engineering degree received from a U.S. institution between April 1, 1990, and June 1996, who resided outside the United States on April 1, 1990, but not with the U.S. armed forces stationed abroad.

SESTAT classifies the following broad categories as science and engineering occupations: computer and mathematical scientists, life and related scientists, physical and related scientists, social and related scientists, and engineers. Postsecondary teachers are included within each of these groups. The following are considered non-science and -engineering occupations: top- and mid-level managers; teachers, except science and engineering postsecondary teachers; technicians/technologists, including computer programmers; people in health and related occupations, social services and related occupations, sales and marketing occupations, and other non-science and -engineering occupations—for example, artists, broadcasters, editors, entertainers, public relations specialists, writers, clerical and administrative support personnel, farmers, foresters, fishermen, lawyers, judges, librarians, archivists, curators, actuaries, food service personnel, historians (except science and technology), architects, construction tradespeople, mechanics and repairers, and those involved in precision/production occupations, operators (for example, machine set-up, machine operators and tenders, fabricators, assemblers) and related occupations, transportation/material moving occupations and protective and other service occupations. Information on SESTAT can be found on the Web <http://srsstats.sbe.nsf.gov/>.

Sampling errors

Sampling errors occur when estimates are derived from a sample rather than from the entire population. The sample used for any particular survey is only one of a large number of possible samples of the same size and design that could have been selected. Even if the same questionnaire and instructions were used, the estimates from each sample would differ from the others. This difference, termed sampling error, occurs by chance, and its variability is measured by the standard error associated with a particular estimate.

The standard error of a sample survey estimate measures the precision with which an estimate from one sample approximates the true population value, and thus can be used to construct a confidence interval for a survey parameter to assess the accuracy of the estimate. Standard errors for the numbers in the appendix tables are provided where available. Tables A-1 through A-6 provide standard errors for tables in chapter 1. Tables A-7 through A-10 provide approximate standard errors for totals for different segments of the science and engineering population from the NSF SESTAT surveys. Information provided in tables A-11 through A-14 allows the user to calculate approximate standard errors for estimates derived from the NSF SESTAT surveys. The following formula can be used for estimating the standard error of totals:

$$SE(Y) = [\beta_0 Y^2 + \beta_1]^{1/2}$$

Where: $SE(Y)$ is the predicted standard error of the estimated total Y and β_0 and β_1 are the regression coefficients provided in tables A-11 through A-14. Approximate standard errors for percentages can be calculated from the following formula:

$$SE(P) = [\beta_1 / Y (P(100-P))]^{1/2}$$

Where: $SE(P)$ is the predicted standard error for the percentage, Y is the estimated number of persons in the base of the percentage, and β_1 is the regression coefficients provided in tables A-11 through A-14. A 95 percent confidence interval for an estimate can be calculated by multiplying 1.96 by the standard error of the estimate, and adding and subtracting the resulting amount from the estimate.

Appendix table A-1. Standard errors for text table 1-5

Sex and race/ethnicity	Completed a degree: Completed bachelor's	Completed a degree: Completed associate's[1]	Completed a degree: Completed certificate[1]	Still enrolled for bachelor's[2]	No degree, no longer enrolled toward bachelor's[3]
Sex					
Men	1.7	1.0	0.7	1.5	1.7
Women	1.9	1.3	0.8	1.2	1.6
Race/ethnicity					
White, non-Hispanic	1.6	1.0	0.6	1.0	1.3
Asian/Pacific Islander	6.0	3.1	0.6	4.8	6.4
Black, non-Hispanic	3.3	3.1	1.2	2.8	4.1
Hispanic	4.8	2.2	3.3	4.6	5.5
American Indian/Alaskan Native	-	-	-	-	-

[1] Includes only students who are no longer working toward a bachelor's degree but who had completed another type of degree or award.

[2] Includes students who had completed another type of degree or award but are still working toward a bachelor's degree.

[3] Includes students who are no longer enrolled and students who are still enrolled but who are no longer working toward a bachelor's degree.

KEY: - = insufficient number of cases.

NOTE: Details may not add to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 1998*, Supplemental Table 12-1.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table A-2. Standard errors for appendix table 1-1

Estimated percentage	Base of percentage in thousands	Standard error	90 percent confidence interval[1]		95 percent confidence interval[1]	
			Lower bound	Upper bound	Lower bound	Upper bound
2 or 98	100	2.2	0.0	5.5	0.0	6.2
	100,000	0.1	1.9	2.1	1.9	2.1
10 or 90	100	4.6	2.4	17.6	1.0	19.0
	100,000	0.2	9.8	10.2	9.7	10.3
50	100	7.7	37.3	62.7	34.9	65.1
	100,000	0.2	49.6	50.4	49.5	50.5

[1] The confidence interval for the larger values can be found by taking the complement of that shown, e.g., for 98 it would be 93.8 to 100 for 95 percent confidence.

SOURCE: U.S. Department of Commerce, Bureau of the Census, *Educational Attainment in the United States,* in U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics: 1998,* p. 516.

Appendix table A-3. Standard errors for appendix table 1-2.

	All			White, non-Hispanic			Black, non-Hispanic			Hispanic		
March	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
1971	0.5	0.7	0.7	0.5	0.7	0.7	2.2	3.2	2.9	2.9	4.3	3.9
1972	0.5	0.7	0.7	0.5	0.7	0.7	2.1	3.2	2.8	2.9	4.3	4.0
1973	0.5	0.7	0.7	0.5	0.7	0.7	2.0	3.0	2.7	2.6	3.8	3.5
1974	0.4	0.6	0.6	0.4	0.6	0.6	1.9	2.8	2.6	2.5	3.6	3.4
1975	0.4	0.6	0.6	0.4	0.6	0.6	1.8	2.7	2.5	2.5	3.5	3.4
1976	0.4	0.5	0.6	0.4	0.5	0.6	1.7	2.7	2.3	2.5	3.6	3.4
1977	0.4	0.5	0.6	0.4	0.5	0.6	1.7	2.4	2.3	2.5	3.6	3.4
1978	0.4	0.5	0.6	0.4	0.5	0.6	1.6	2.4	2.2	2.3	3.3	3.2
1979	0.4	0.5	0.5	0.4	0.5	0.5	1.6	2.5	2.2	2.3	3.4	3.2
1980	0.4	0.5	0.5	0.4	0.5	0.5	1.5	2.3	2.0	2.2	3.1	3.0
1981	0.4	0.5	0.5	0.3	0.5	0.5	1.5	2.1	2.0	2.1	3.0	2.9
1982	0.4	0.5	0.5	0.4	0.5	0.5	1.4	2.1	1.9	2.1	3.1	2.9
1983	0.4	0.5	0.5	0.4	0.5	0.5	1.4	2.1	1.9	2.2	3.1	3.0
1984	0.4	0.5	0.5	0.4	0.5	0.5	1.4	2.2	1.8	2.1	3.0	2.9
1985	0.4	0.5	0.5	0.4	0.5	0.5	1.4	2.0	1.9	2.1	3.1	2.9
1986	0.4	0.5	0.5	0.4	0.5	0.5	1.3	1.7	1.8	2.0	2.9	2.9
1987	0.4	0.5	0.5	0.4	0.5	0.5	1.3	1.8	1.8	2.0	2.8	2.8
1988	0.4	0.6	0.5	0.4	0.6	0.5	1.5	2.2	2.0	2.3	3.2	3.2
1989	0.4	0.6	0.5	0.4	0.6	0.5	1.4	2.2	1.9	2.2	3.1	3.2
1990	0.4	0.6	0.5	0.4	0.6	0.5	1.4	2.1	1.9	2.0	2.7	2.8
1991	0.4	0.6	0.5	0.4	0.6	0.5	1.4	1.9	1.9	2.0	2.8	2.9
1992	0.4	0.5	0.5	0.4	0.6	0.5	1.4	2.0	2.0	2.0	2.7	2.9
1993	0.4	0.6	0.5	0.4	0.6	0.5	1.4	1.9	2.0	1.9	2.6	2.8
1994	0.4	0.5	0.5	0.4	0.5	0.5	1.1	1.7	1.5	1.2	1.7	1.8
1995	0.4	0.5	0.5	0.3	0.5	0.5	1.0	1.5	1.5	1.3	1.7	1.8
1996	0.4	0.5	0.5	0.4	0.5	0.5	1.1	1.6	1.6	1.3	1.7	1.9
1997	0.4	0.5	0.5	0.3	0.5	0.5	1.1	1.7	1.4	1.2	1.7	1.8
1998	0.4	0.5	0.5	0.3	0.5	0.4	1.0	1.5	1.4	1.2	1.7	1.8

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys.

Appendix table A-4. Standard errors for appendix table 1-3

	1994 high school diploma status			
Disability status	High school diploma	GED or equivalent certificate	Enrolled in high school/working toward GED	Dropped out
Total	0.7	0.5	0.3	0.5
Does not have a disability	0.8	0.5	0.3	0.5
Has a disability	1.9	0.9	1.4	1.2
Visual impairment	6.0	3.8	5.1	1.2
Hearing impairment or deaf	5.1	3.7	4.1	1.8
Speech impairment	3.0	1.2	2.1	2.0
Orthopedic impairment	6.7	1.2	2.4	6.6
Learning disability	2.8	1.4	1.8	1.9
Other disability or impairment*	3.6	1.2	3.0	2.4

* Parent reported student had any other disability including health problems, emotional problems, mental retardation, or other physical disabilities and had received services for it.

NOTE: GED refers to passing the General Education Development exam.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, Third Follow-up survey, 1994 (NELS: 88/94), Data Analysis System (in U.S. Department of Education, National Center for Education Statistics. 1999. *Students with Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes*, NCES 1999-187, by Laura Horn and Jennifer Berktold).

Appendix table A-5. Standard errors for appendix table 1-4

	All			White, non-Hispanic			Black, non-Hispanic			Hispanic		
March	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
1971	0.7	1.0	0.9	0.7	1.0	1.0	2.6	3.9	3.6	3.8	5.8	4.9
1972	0.7	0.9	0.9	0.7	1.0	1.0	2.6	3.9	3.4	4.0	6.0	5.2
1973	0.6	0.9	0.9	0.7	1.0	1.0	2.5	3.7	3.3	3.3	5.0	4.2
1974	0.6	0.9	0.9	0.7	1.0	1.0	2.4	3.5	3.2	3.3	4.8	4.5
1975	0.6	0.9	0.9	0.7	0.9	0.9	2.3	3.5	3.1	3.3	4.9	4.4
1976	0.6	0.8	0.8	0.6	0.9	0.9	2.2	3.4	2.9	3.2	4.8	4.2
1977	0.6	0.8	0.8	0.6	0.9	0.9	2.2	3.2	3.0	3.3	4.6	4.6
1978	0.6	0.8	0.8	0.6	0.9	0.9	2.2	3.2	2.9	3.1	4.4	4.3
1979	0.6	0.8	0.8	0.6	0.9	0.9	2.1	3.2	2.9	3.1	4.6	4.1
1980	0.6	0.8	0.8	0.6	0.9	0.9	2.0	3.0	2.7	2.8	4.1	3.8
1981	0.6	0.8	0.8	0.6	0.9	0.9	2.0	2.9	2.7	2.7	3.9	3.6
1982	0.6	0.8	0.8	0.6	0.9	0.9	2.0	3.0	2.7	2.7	4.0	3.8
1983	0.6	0.8	0.8	0.6	0.9	0.9	2.0	2.9	2.7	2.9	4.1	4.0
1984	0.6	0.8	0.8	0.6	0.9	0.9	1.9	2.9	2.6	2.8	4.1	3.8
1985	0.6	0.8	0.8	0.6	0.9	0.9	1.9	2.8	2.6	2.8	4.1	3.8
1986	0.6	0.8	0.8	0.6	0.9	0.9	1.9	2.7	2.6	2.6	3.8	3.7
1987	0.6	0.8	0.8	0.6	0.9	0.9	1.9	2.7	2.6	2.6	3.7	3.7
1988	0.6	0.9	0.8	0.7	1.0	1.0	2.0	3.0	2.8	2.9	4.2	4.2
1989	0.6	0.9	0.8	0.7	1.0	1.0	2.0	3.0	2.7	2.9	4.0	4.2
1990	0.6	0.8	0.8	0.7	1.0	0.9	2.0	2.9	2.7	2.6	3.6	3.6
1991	0.6	0.8	0.8	0.7	1.0	1.0	2.0	2.8	2.7	2.6	3.6	3.8
1992	0.6	0.9	0.8	0.7	1.0	1.0	2.0	2.9	2.8	2.6	3.5	3.8
1993	0.6	0.9	0.8	0.7	1.0	1.0	2.0	2.9	2.8	2.5	3.5	3.6
1994	0.6	0.8	0.8	0.6	0.9	0.9	1.7	2.5	2.3	1.6	2.2	2.4
1995	0.6	0.8	0.8	0.6	0.9	0.9	1.6	2.4	2.3	1.7	2.3	2.4
1996	0.6	0.8	0.8	0.7	0.9	0.9	1.7	2.6	2.4	1.7	2.3	2.5
1997	0.6	0.8	0.8	0.7	0.9	0.9	1.7	2.6	2.3	1.6	2.3	2.3
1998	0.6	0.8	0.8	0.7	1.0	0.9	1.7	2.5	2.3	1.6	2.2	2.3

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys.

Appendix table A-6. Standard errors for appendix table 1-15

	All			White, non-Hispanic			Black, non-Hispanic			Hispanic		
March	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
1971........	0.6	0.8	0.7	0.6	0.9	0.8	1.8	2.8	2.4	2.5	4.3	2.7
1972........	0.6	0.8	0.8	0.6	0.9	0.8	1.8	2.6	2.5	2.3	3.6	2.8
1973........	0.5	0.8	0.7	0.6	0.9	0.8	1.8	2.5	2.4	2.2	3.4	2.9
1974........	0.5	0.8	0.7	0.6	0.9	0.8	1.6	2.4	2.1	2.0	2.7	3.0
1975........	0.5	0.8	0.7	0.6	0.9	0.8	1.7	2.6	2.3	2.5	3.9	3.2
1976........	0.5	0.8	0.7	0.6	0.8	0.8	1.8	2.6	2.4	2.2	3.7	2.5
1977........	0.5	0.8	0.7	0.6	0.9	0.8	1.7	2.4	2.3	2.1	3.0	3.0
1978........	0.5	0.8	0.7	0.6	0.9	0.8	1.6	2.2	2.2	2.3	3.3	3.4
1979........	0.5	0.8	0.7	0.6	0.8	0.8	1.6	2.5	2.1	2.1	3.2	2.7
1980........	0.5	0.7	0.7	0.6	0.8	0.8	1.5	2.1	2.0	2.0	3.0	2.6
1981........	0.5	0.7	0.7	0.5	0.8	0.7	1.4	2.1	1.9	1.8	2.8	2.3
1982........	0.5	0.7	0.7	0.6	0.8	0.8	1.5	2.1	2.0	2.0	3.1	2.7
1983........	0.5	0.7	0.7	0.6	0.8	0.8	1.5	2.2	2.0	2.2	3.1	3.1
1984........	0.5	0.7	0.7	0.6	0.8	0.8	1.4	2.2	1.8	2.2	3.1	3.0
1985........	0.5	0.7	0.7	0.6	0.8	0.8	1.4	1.9	1.9	2.1	3.2	2.9
1986........	0.5	0.7	0.7	0.6	0.8	0.8	1.3	1.8	1.9	1.9	2.7	2.7
1987........	0.5	0.7	0.7	0.6	0.8	0.8	1.3	1.9	1.8	1.8	2.7	2.5
1988........	0.5	0.8	0.7	0.6	0.9	0.8	1.5	2.2	2.0	2.3	3.3	3.1
1989........	0.5	0.8	0.7	0.6	0.9	0.9	1.5	2.2	2.0	2.2	2.9	3.2
1990........	0.5	0.8	0.7	0.6	0.9	0.8	1.5	2.3	1.9	1.8	2.4	2.7
1991........	0.5	0.8	0.7	0.6	0.9	0.9	1.3	2.0	1.8	2.0	2.6	3.0
1992........	0.5	0.8	0.8	0.6	0.9	0.9	1.4	2.0	1.9	1.9	2.5	2.8
1993........	0.5	0.8	0.8	0.6	0.9	0.9	1.5	2.1	2.1	1.7	2.3	2.6
1994........	0.5	0.7	0.7	0.6	0.9	0.8	1.2	1.8	1.7	1.1	1.4	1.7
1995........	0.5	0.7	0.7	0.6	0.9	0.9	1.3	1.9	1.7	1.2	1.6	1.8
1996........	0.5	0.8	0.8	0.7	0.9	0.9	1.3	1.8	1.9	1.2	1.7	1.8
1997........	0.6	0.8	0.8	0.7	0.9	0.9	1.3	1.8	1.8	1.2	1.7	1.9
1998........	0.6	0.8	0.8	0.7	0.9	1.0	1.3	1.9	1.8	1.2	1.6	1.7

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys.

Table A-7. Scientists and engineers in 1997 (total population) approximate standard errors for specified demographic groups

Estimated number	Demographic group				
	Total	Male	Female	White	Nonwhite
100	160	160	160	170	110
200	230	230	230	250	160
500	370	360	360	390	250
750	450	450	440	480	310
1,000	520	520	510	550	350
2,000	730	730	720	780	500
3,000	900	890	880	950	610
4,000	1,030	1,030	1,020	1,100	710
5,000	1,160	1,150	1,140	1,230	790
10,000	1,640	1,630	1,610	1,740	1,120
25,000	2,580	2,580	2,540	2,740	1,770
50,000	3,650	3,640	3,580	3,870	2,490
100,000	5,160	5,140	5,040	5,470	3,490
250,000	8,110	8,070	7,840	8,600	5,390
500,000	11,380	11,280	10,780	12,050	7,300
750,000	13,820	13,650	12,810	14,610	8,520
1,000,000	15,830	15,570	14,330	16,700	9,330
2,000,000	21,610	20,930	17,420	22,640	-
3,000,000	25,480	24,220	17,140	26,490	-
4,000,000	28,240	26,230	13,310	29,070	-
5,000,000	30,200	27,240	-	30,720	-
6,000,000	31,490	27,380	-	31,580	-
7,000,000	32,220	26,640	-	31,720	-
8,000,000	32,400	24,950	-	31,140	-
9,000,000	32,060	-	-	29,800	-
10,000,000	31,170	-	-	27,590	-
11,000,000	29,690	-	-	-	-
12,000,000	27,510	-	-	-	-

KEY: - = Not applicable.

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. White category excludes persons of Hispanic origin. Hispanics are included in the Nonwhite category.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Table A-8. Bachelor's scientists and engineers in 1997 approximate standard errors for specified demographic groups

Estimated number	Demographic group				
	Total	Male	Female	White	Nonwhite
100	170	170	180	180	130
200	240	240	250	260	180
500	380	380	390	410	280
750	470	470	480	510	350
1,000	540	540	550	580	400
2,000	760	760	780	830	570
3,000	940	930	960	1,010	700
4,000	1,080	1,080	1,110	1,170	800
5,000	1,210	1,210	1,240	1,310	900
10,000	1,710	1,700	1,750	1,850	1,270
25,000	2,700	2,690	2,770	2,920	2,000
50,000	3,810	3,800	3,900	4,120	2,810
100,000	5,380	5,360	5,490	5,810	3,930
250,000	8,470	8,410	8,540	9,120	6,010
500,000	11,860	11,730	11,740	12,740	7,960
750,000	14,390	14,150	13,960	15,410	9,060
1,000,000	16,460	16,100	15,610	17,560	9,590
2,000,000	22,360	21,320	18,970	23,450	-
3,000,000	26,200	24,220	-	26,940	-
4,000,000	28,830	25,590	-	28,900	-
5,000,000	30,560	-	-	29,640	-
6,000,000	31,530	-	-	29,240	-
7,000,000	31,820	-	-	-	-

KEY: - = Not applicable.

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. White category excludes persons of Hispanic origin. Hispanics are included in the Nonwhite category.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Table A-9. Master's scientists and engineers in 1997 approximate standard errors for specified demographic groups

Estimated number	Demographic group				
	Total	Male	Female	White	Nonwhite
100	160	160	180	180	110
200	230	220	250	250	160
500	360	350	400	390	250
750	440	430	490	480	300
1,000	510	500	560	560	350
2,000	720	710	790	790	490
3,000	890	860	970	970	600
4,000	1,020	1,000	1,120	1,110	700
5,000	1,140	1,120	1,250	1,250	780
10,000	1,620	1,580	1,770	1,760	1,100
25,000	2,560	2,500	2,790	2,790	1,730
50,000	3,610	3,530	3,940	3,940	2,410
100,000	5,100	4,980	5,540	5,560	3,330
250,000	8,050	7,860	8,610	8,770	4,860
500,000	11,330	11,060	11,810	12,360	5,770
750,000	13,810	13,480	14,010	15,070	-
1,000,000	15,870	15,480	15,630	17,330	-
2,000,000	22,000	21,460	-	24,080	-
3,000,000	26,390	-	-	-	-

KEY: - = Not applicable.

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. White category excludes persons of Hispanic origin. Hispanics are included in the Nonwhite category.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Table A-10. Doctorate scientists and engineers in 1997 approximate standard errors for specified demographic groups

Estimated number	Demographic group				
	Total	Male	Female	White	Nonwhite
100	90	90	80	90	80
200	120	130	120	130	110
500	200	200	190	210	170
750	240	240	230	250	210
1,000	280	280	270	290	240
2,000	390	400	380	410	340
3,000	480	490	460	510	410
4,000	550	560	530	590	480
5,000	620	630	600	650	530
10,000	870	890	840	920	750
25,000	1,380	1,390	1,330	1,460	1,180
50,000	1,940	1,950	1,880	2,050	1,650
100,000	2,710	2,700	2,660	2,860	2,260
250,000	4,110	3,990	-	4,330	-
500,000	5,410	4,900	-	5,670	-
750,000	6,080	-	-	-	-

KEY: - = Not applicable.

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. White category excludes persons of Hispanic origin. Hispanics are included in the Nonwhite category.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Table A-11. Scientists and engineers in 1997 (total population)
B_0 and B_1 parameters for specified demographic groups

Field	Parameter	Total	Male	Female	White	Nonwhite
Total scientists and engineers						
Total, all fields	B_0	-0.000017	-0.000024	-0.000054	-0.000023	-0.000039
	B_1	267.556809	266.082286	2[illegible]9.108978	301.435705	125.898534
Field of highest degree						
Computer/mathematical sciences	B_0	-0.000118	-0.000224	-0.000202	-0.000173	-0.000296
	B_1	236.726795	244.641287	202.746064	266.597694	127.850882
Life sciences	B_0	-0.000110	-0.000111	-0.000247	-0.000135	-0.000260
	B_1	252.300164	227.523157	238.407569	275.047714	127.697243
Physical sciences	B_0	-0.000130	-0.000108	-0.000366	-0.000151	-0.000340
	B_1	183.419662	179.296626	165.566548	194.881107	105.910509
Social sciences	B_0	-0.000068	-0.000114	-0.000117	-0.000096	-0.000086
	B_1	361.162128	366.520658	312.428733	394.585864	194.799605
Engineering	B_0	-0.000031	-0.000034	-0.000407	-0.000039	-0.0[illegible]091
	B_1	155.244704	152.467898	130.166099	164.353694	98.[illegible]587
Non-science and engineering	B_0	-0.000041	-0.000056	-0.000142	-0.000063	-0.000144
	B_1	391.883715	391.371972	370.403467	464.260957	176.546023
Occupation						
Computer/mathematical sciences	B_0	-0.000058	-0.000118	-0.000145	0.000000	-0.000115
	B_1	207.120858	201.979137	221.171956	219.475688	112.508290
Life sciences	B_0	-0.000054	-0.000033	0.000101	0.000024	0.000329
	B_1	171.324258	165.658069	146.854238	184.032613	79.935406
Physical sciences	B_0	0.000020	0.000157	-0.000537	-0.000008	0.000003
	B_1	131.221795	127.962848	133.875792	147.988034	89.025751
Social sciences	B_0	0.000074	-0.000066	-0.000168	0.000119	0.000880
	B_1	179.055508	172.835886	181.634049	177.250549	102.254416
Engineering	B_0	-0.000027	-0.000037	0.000074	-0.000029	-0.000077
	B_1	159.874286	167.117021	123.484089	166.913897	95.014115
Non-science and engineering	B_0	-0.000021	-0.000029	-0.000085	-0.000024	-0.000065
	B_1	310.860242	331.017217	304.799577	342.790593	145.958454

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. White category excludes persons of Hispanic origin. Hispanics are included in the Nonwhite category.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Table A-12. Bachelor's scientists and engineers in 1997: B_0 and B_1 parameters for specified demographic groups

Field	Parameter	Total	Male	Female	White	Nonwhite
Bachelor's scientists and engineers						
Total, all fields	B_0	-0.000021	-0.000032	-0.000064	-0.000033	-0.000070
	B_1	292.072026	290.874243	307.666614	341.321185	161.723878
Field of highest degree						
Computer/mathematical sciences	B_0	-0.000161	-0.000350	-0.000313	-0.000244	-0.000523
	B_1	255.788202	273.246081	233.520328	288.343713	141.392413
Life sciences	B_0	-0.000168	-0.000238	-0.000325	-0.000196	-0.000564
	B_1	292.443412	283.990403	281.891414	308.427971	167.632490
Physical sciences	B_0	-0.000324	-0.000341	-0.000680	-0.000381	-0.000701
	B_1	260.144274	256.658700	205.987926	276.768608	140.415727
Social sciences	B_0	-0.000089	-0.000185	-0.000178	-0.000128	-0.000147
	B_1	401.032458	404.944022	372.999579	442.592722	217.401383
Engineering	B_0	-0.000046	-0.000050	-0.000654	-0.000055	-0.000169
	B_1	171.539618	170.262601	150.879601	174.117919	117.315629
Non-science and engineering	B_0	-0.000249	-0.000318	-0.000720	-0.000259	-0.000442
	B_1	317.094020	280.018204	350.393843	328.655762	155.987977
Occupation						
Computer/mathematical sciences	B_0	-0.000073	-0.000212	-0.000204	-0.000033	-0.000270
	B_1	253.378487	258.234019	265.097897	280.504996	133.191092
Life sciences	B_0	-0.000553	-0.000449	-0.000545	-0.000468	-0.002381
	B_1	247.125048	250.372992	212.013620	259.995237	147.018421
Physical sciences	B_0	-0.000108	0.000007	-0.000414	-0.000154	0.000217
	B_1	194.333236	204.680278	168.139846	211.388316	117.863110
Social sciences	B_0	-0.001155	-0.001403	-0.002197	-0.000882	-0.003235
	B_1	315.194469	310.604467	275.689409	336.142843	162.552004
Engineering	B_0	-0.000058	-0.000080	0.000218	-0.000030	-0.000066
	B_1	173.524026	180.212474	123.625802	166.756779	110.981096
Non-science and engineering	B_0	-0.000015	-0.000037	-0.000084	-0.000026	-0.000035
	B_1	304.877509	361.265645	320.447086	351.010494	163.044026

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. White category excludes persons of Hispanic origin. Hispanics are included in the Nonwhite category.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System)

Table A-13. Master's scientists and engineers in 1997: B_0 and B_1 parameters for specified demographic groups

	Parameter	Total	Male	Female	White	Nonwhite
Master's scientists and engineers						
Total, all fields	B_0	-0.000010	-0.000010	-0.000070	-0.000010	-0.000110
	B_1	261.582425	249.272682	313.917037	310.518497	121.874418
Field of highest degree						
Computer/mathematical sciences	B_0	-0.000389	-0.000620	-0.000797	-0.000679	-0.000213
	B_1	169.670669	194.902956	149.497582	217.866249	90.851638
Life sciences	B_0	-0.000142	-0.000416	-0.001000	-0.000073	-0.000139
	B_1	157.906999	205.822719	163.498122	166.493218	98.266106
Physical sciences	B_0	-0.000941	-0.000601	-0.001941	-0.001147	-0.001750
	B_1	185.818730	159.117873	164.713894	198.691985	103.063673
Social sciences	B_0	-0.000277	-0.000560	-0.000381	-0.000323	-0.000176
	B_1	265.467258	273.757759	249.760731	287.154485	121.066908
Engineering	B_0	-0.000163	-0.000186	-0.000618	-0.000214	-0.000051
	B_1	135.843876	140.796694	92.550885	154.927495	74.673986
Non-science and engineering	B_0	-0.000021	0.000025	-0.000131	-0.000035	-0.000243
	B_1	399.699588	393.111572	402.282131	479.977509	183.805378
Occupation						
Computer/mathematical sciences	B_0	-0.000159	-0.000213	-0.000571	-0.000092	-0.000270
	B_1	184.317669	173.155011	171.508323	217.785387	84.823597
Life sciences	B_0	-0.000283	-0.000325	-0.000855	-0.000246	0.001694
	B_1	202.940762	222.393957	173.419563	223.626570	104.794791
Physical sciences	B_0	0.000242	0.000573	-0.000513	-0.000060	0.000320
	B_1	113.766030	107.688480	126.027724	129.325076	83.941575
Social sciences	B_0	0.000017	0.000174	-0.000450	0.000004	0.002675
	B_1	250.736471	221.594517	221.530535	265.808006	105.303265
Engineering	B_0	-0.000048	-0.000036	-0.000509	-0.000065	-0.000011
	B_1	131.759860	130.252047	152.762310	150.144122	81.251219
Non-science and engineering	B_0	-0.000024	-0.000042	-0.000084	-0.000022	-0.000234
	B_1	331.715740	319.924372	362.977029	379.776204	168.110343

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. White category excludes persons of Hispanic origin. Hispanics are included in the Nonwhite category.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Table A-14. Doctorate scientists and engineers in 1997: B_0 and B_1 parameters for specified demographic groups

	Parameter	Total	Male	Female	White	Nonwhite
Doctorate scientists and engineers						
Total, all fields	B_0	-0.000037	-0.000062	-0.000002	-0.000043	-0.000064
	B_1	76.876792	79.006129	71.073495	85.880316	57.503226
Field of highest degree						
Computer/mathematical sciences	B_0	-0.000492	-0.000536	-0.003185	-0.000514	-0.000905
	B_1	27.858922	28.313247	25.674674	29.191779	26.842639
Life sciences	B_0	-0.000105	-0.000159	-0.000304	-0.000135	-0.000278
	B_1	29.401256	32.145445	25.296874	29.929578	40.331744
Physical sciences	B_0	-0.000234	-0.000257	-0.000989	-0.000259	-0.000426
	B_1	41.161388	43.060035	25.584204	41.826782	42.554203
Social sciences	B_0	-0.000130	-0.000261	-0.000230	-0.000150	-0.000542
	B_1	37.558247	42.113636	36.095063	40.203225	27.270734
Engineering	B_0	-0.000235	-0.000290	-0.000306	-0.000368	-0.000269
	B_1	37.999650	40.072988	19.083474	45.586171	28.113431
Non-science and engineering	B_0	-0.000566	-0.001122	-0.000961	-0.000857	-0.002070
	B_1	273.973259	299.676674	263.741279	295.388354	189.319964
Occupation						
Computer/mathematical sciences	B_0	-0.000188	-0.000122	-0.003499	-0.000179	-0.001108
	B_1	58.055572	53.172544	80.217510	54.703795	47.476517
Life sciences	B_0	-0.000146	-0.000213	-0.000737	-0.000178	-0.000298
	B_1	38.301137	39.414343	42.071430	42.129457	31.226026
Physical sciences	B_0	-0.000190	-0.000222	-0.001019	-0.000209	0.000279
	B_1	40.900646	42.223431	27.096992	42.570874	34.256695
Social sciences	B_0	-0.000012	-0.000324	0.000054	-0.000069	-0.000410
	B_1	49.834241	58.233142	45.454993	52.324055	39.785321
Engineering	B_0	-0.000018	-0.000055	0.000027	-0.000008	-0.000022
	B_1	35.602742	37.226207	21.370513	40.643250	28.427238
Non-science and engineering	B_0	-0.000118	-0.000204	0.000043	-0.000148	0.000172
	B_1	151.701608	162.473119	128.810881	156.419107	101.502664

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. White category excludes persons of Hispanic origin. Hispanics are included in the Nonwhite category.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

APPENDIX B

STATISTICAL TABLES

STATISTICAL TABLES

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Appendix table 1-1. Highest level of education attained by persons age 18 and over, by age, sex, and race/ethnicity: March 1997 [percentages]

Highest level of education attained, sex, and race/ethnicity	Age									
	Total, 18 years old and over	18 and 19 years old	20 to 24 years old	25 to 29 years old	30 to 34 years old	35 to 39 years old	40 to 49 years old	50 to 59 years old	60 to 64 years old	65 years old and over
Total										
No high school diploma	18.6	43.3	14.5	12.6	12.8	12.5	11.7	16.9	25.0	34.5
High school graduate	33.4	30.8	31.3	30.2	32.8	35.1	33.0	35.2	37.0	34.3
Some college	19.5	25.6	38.6	21.6	18.5	18.6	18.6	16.3	13.8	12.9
Associate's degree	6.8	0.2	5.2	7.7	9.5	8.8	8.9	6.6	4.9	3.6
Bachelor's degree or higher	21.7	0.1	10.3	27.8	26.4	24.9	27.7	25.0	19.2	14.8
Men										
No high school diploma	19.0	48.3	16.0	14.2	14.0	13.6	12.4	17.3	23.9	34.2
High school graduate	32.1	30.0	32.4	30.9	33.7	35.8	31.4	32.0	32.8	29.6
Some college	19.3	21.5	38.1	21.7	17.5	17.7	18.6	16.0	14.4	13.3
Associate's degree	6.1	0.2	4.9	6.9	8.7	7.5	8.0	5.7	4.6	2.9
Bachelor's degree or higher	23.5	0.0	8.6	26.3	26.1	25.3	29.6	29.0	24.4	19.9
Women										
No high school diploma	18.1	38.1	13.0	11.1	11.7	11.4	11.1	16.6	26.1	34.7
High school graduate	34.7	31.7	30.2	29.5	32.0	34.4	34.6	38.2	40.7	37.7
Some college	19.6	29.6	39.2	21.5	19.5	19.4	18.5	16.6	13.4	12.5
Associate's degree	7.5	0.3	5.6	8.6	10.3	10.2	9.9	7.5	5.2	4.1
Bachelor's degree or higher	20.1	0.3	12.0	29.3	26.6	24.6	25.9	21.1	14.6	11.1
White, non-Hispanic										
No high school diploma	14.2	39.3	8.4	7.1	7.6	8.3	7.3	11.8	19.3	30.3
High school graduate	34.4	32.2	30.7	29.5	33.6	35.9	33.3	36.5	39.6	36.4
Some college	19.9	28.2	42.1	22.1	18.5	18.4	19.0	17.4	15.1	13.8
Associate's degree	7.3	0.2	6.3	8.6	10.3	9.2	9.7	6.9	5.0	3.7
Bachelor's degree or higher	24.2	0.2	12.4	32.6	30.1	28.1	30.6	27.3	21.0	15.8
Black, non-Hispanic										
No high school diploma	25.2	48.5	18.1	13.1	15.6	14.7	18.6	29.7	42.9	55.8
High school graduate	36.3	33.6	39.2	40.3	38.4	38.8	38.5	35.8	31.1	24.8
Some college	20.8	18.0	34.7	26.6	23.1	24.2	20.2	14.0	11.0	8.3
Associate's degree	5.9	0.0	2.6	5.8	9.4	8.6	7.4	6.4	4.5	2.7
Bachelor's degree or higher	11.8	0.0	5.5	14.2	13.5	13.8	15.3	14.2	10.5	8.5
Hispanic										
No high school diploma	45.2	58.0	39.6	38.2	39.4	39.3	41.6	52.2	61.7	69.6
High school graduate	26.2	25.0	28.4	28.5	26.6	28.7	26.8	24.5	21.3	17.6
Some college	15.1	16.4	25.8	16.5	15.8	14.9	14.5	9.8	6.4	5.3
Associate's degree	4.7	0.5	3.0	5.8	6.1	6.2	5.5	4.8	2.8	1.7
Bachelor's degree or higher	8.8	0.0	3.3	11.0	12.0	10.9	11.6	8.7	7.7	5.8

NOTE: Data are based on a sample survey of the civilian noninstitutional population. Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Commerce, Bureau of the Census, Current Population Survey. Data for this table were published in the U.S. Department of Education National Center for Education Statistics, *Digest of Education Statistics 1998*, Table 9, page 18.

Appendix table 1-2. Percentage of 25- to 29-year-olds who had completed high school, by race/ethnicity and sex: March 1971–98

Year	Total			White, non-Hispanic			Black, non-Hispanic			Hispanic		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
1971	77.7	79.1	76.5	81.7	83.0	80.5	58.8	56.7	60.5	48.3	51.3	45.7
1972	79.8	80.5	79.2	83.4	84.1	82.7	64.1	61.7	66.0	47.6	47.1	47.9
1973	80.2	80.6	79.8	84.0	84.2	83.9	64.1	63.2	64.9	52.3	54.2	50.6
1974	81.9	83.1	80.8	85.5	86.0	85.0	68.4	71.5	65.8	54.1	55.9	52.5
1975	83.1	84.5	81.7	86.6	88.0	85.2	71.1	72.3	70.1	53.1	52.2	53.9
1976	84.7	86.0	83.5	87.7	89.0	86.4	74.0	72.8	74.9	58.1	57.6	58.4
1977	85.4	86.6	84.2	88.6	89.2	88.0	74.5	77.5	72.0	58.0	61.9	54.6
1978	85.3	86.0	84.6	88.5	88.8	88.2	77.4	78.7	76.3	56.5	58.5	54.6
1979	85.6	86.3	84.9	89.2	89.8	88.5	74.7	74.0	75.3	57.1	55.5	58.6
1980	85.4	85.4	85.5	89.2	89.1	89.2	76.7	74.8	78.3	57.9	57.0	58.6
1981	86.3	86.5	86.1	89.8	89.7	89.9	77.6	78.8	76.6	59.8	59.1	60.4
1982	86.2	86.3	86.1	89.1	89.1	89.1	81.0	80.4	81.5	61.0	60.6	61.2
1983	86.0	86.0	86.0	89.3	89.3	89.3	79.5	79.0	79.9	58.4	57.8	58.9
1984	85.9	85.6	86.3	89.4	89.4	89.4	79.1	75.9	81.7	58.6	56.7	60.1
1985	86.2	85.9	86.4	89.5	89.2	89.9	80.5	80.6	80.5	61.0	58.6	63.1
1986	86.1	85.9	86.4	89.6	88.7	90.4	83.5	86.4	81.0	59.1	58.2	60.0
1987	86.0	85.5	86.4	89.4	88.9	90.0	83.5	84.5	82.6	59.8	58.6	61.0
1988	85.9	84.7	87.1	89.7	88.4	90.9	80.9	80.9	80.9	62.3	59.9	64.8
1989	85.5	84.4	86.5	89.3	88.2	90.4	82.3	80.5	83.8	61.0	61.0	61.1
1990	85.7	84.4	87.0	90.1	88.6	91.6	81.8	81.4	82.0	58.2	56.6	59.9
1991	85.4	84.9	85.8	89.8	89.2	90.5	81.8	83.6	80.1	56.7	56.4	57.2
1992	86.3	86.1	86.5	90.6	90.3	91.1	80.9	82.7	79.3	60.9	61.[illegible]	60.6
1993	86.7	86.0	87.4	91.2	90.7	91.8	82.7	84.8	80.8	60.9	58.2	63.9
1994	86.1	84.5	87.6	91.1	90.0	92.3	84.1	82.8	85.3	60.3	58.0	63.0
1995	86.9	86.3	87.4	92.5	92.0	93.0	86.8	88.4	85.3	57.2	55.7	58.7
1996	87.3	86.5	88.1	92.6	92.0	93.1	86.0	87.9	84.5	61.1	59.7	62.9
1997	87.4	85.8	88.9	92.9	91.7	94.0	86.9	85.8	87.8	61.8	59.2	64.8
1998	88.1	86.6	89.6	93.6	92.5	94.6	88.2	88.4	88.1	62.8	59.9	66.3

NOTE: The Current Population Survey (CPS) questions used to obtain educational attainment were changed in 1992. For 1992 to 1998, high school completers includes those who have a high school diploma or an equivalency certificate. For the years 1971 to 1991, high school completers are people who have completed 4 years of high school or more (but may not have a diploma or equivalency certificate). Included in total but not shown separately are other racial/ethnic groups.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys, various years.

Appendix table 1-3. Percentage distribution of 1988 8th graders, by high school completion status as of Spring 1994, disability status and type

Disability status and type	High school diploma	GED or equivalent certificate	Enrolled in high school or working toward GED	Dropped out
Total	82.0	6.0	5.2	6.8
Does not have a disability	83.8	5.9	4.3	6.0
Has as a disability	72.4	5.7	10.6	10.3
Visual impairment	77.3	4.9	15.8	2.0
Hearing impairment or deaf	75.5	9.8	10.3	4.4
Speech impairment	87.0	2.3	6.0	4.7
Orthopedic impairment	75.0	1.7	5.9	17.4
Learning disability	71.4	6.8	9.6	12.3
Other disability or impairment[1]	67.0	7.2	14.3	11.5

[1] Any other disability, including health problems, emotional problems, mental retardation, or other physical disabilities.

NOTE: Percentages may not sum to 100 due to rounding. GED refers to passing the General Education Development exam.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, Third Follow-up survey, 1994 (NELS: 88/94), Data Analysis System (in U.S. Department of Education, National Center for Education Statistics. 1999. *Students with Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes*. NCES 1999-187, by Laura Horn and Jennifer Berktold).

Appendix table 1-4. Percentage of 25- to 29-year-old high school completers with some college, by race/ethnicity and sex: March 1971–98

March	Total			White, non-Hispanic			Black, non-Hispanic			Hispanic		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
1971	43.6	48.7	38.4	44.9	50.2	39.5	30.9	29.0	32.2	30.6	38.3	22.8
1972	45.1	50.7	39.5	46.3	52.3	40.2	33.3	31.7	34.6	32.1	37.2	28.3
1973	45.3	51.4	39.4	46.6	53.0	40.2	33.5	33.5	33.5	31.6	39.4	24.5
1974	48.9	53.8	44.1	50.4	55.6	45.2	35.4	36.9	34.1	39.2	44.1	34.5
1975	50.1	56.0	44.1	51.2	57.3	44.9	38.7	41.0	36.8	41.1	50.4	32.6
1976	52.1	58.2	46.0	53.8	60.1	47.4	37.2	40.5	34.7	36.3	42.3	31.2
1977	53.2	58.0	48.5	54.8	59.9	49.7	41.7	44.2	39.6	41.1	42.6	39.5
1978	54.4	59.3	49.6	55.9	61.4	50.3	44.9	45.2	44.4	43.6	47.2	40.1
1979	54.1	57.7	50.6	55.7	59.4	51.9	41.7	40.7	42.5	44.0	50.7	38.0
1980	52.3	55.8	49.0	53.8	57.3	50.3	42.3	43.6	41.3	39.9	45.5	34.7
1981	50.1	52.7	47.5	51.2	54.1	48.3	42.5	43.0	42.2	39.6	41.7	37.7
1982	49.9	51.5	48.3	50.7	52.2	49.1	45.8	47.4	44.6	39.6	40.6	38.7
1983	50.6	52.1	49.0	51.6	53.4	49.7	41.6	42.0	41.2	42.9	41.1	44.6
1984	50.1	50.9	49.3	51.0	51.7	50.3	41.6	41.6	41.7	45.6	47.5	44.0
1985	50.8	51.5	50.1	51.8	52.5	51.2	42.7	42.4	42.9	44.2	45.9	42.9
1986	51.0	51.4	50.8	52.3	52.8	51.8	43.4	41.5	45.2	42.9	42.8	43.0
1987	50.7	50.4	51.0	51.4	51.5	51.4	43.0	38.4	47.0	44.6	46.3	43.1
1988	50.8	51.6	50.1	51.8	52.4	51.2	41.2	42.9	39.7	44.9	44.3	45.6
1989	51.3	52.0	50.5	52.8	53.4	52.2	42.1	42.2	41.9	44.3	44.8	43.9
1990	52.0	51.8	52.1	53.6	53.4	53.8	44.1	43.0	45.0	40.1	40.4	39.8
1991	53.1	52.3	53.8	54.9	54.7	55.1	43.2	38.3	47.7	42.2	40.9	43.4
1992	56.7	56.0	57.4	58.8	58.3	59.2	44.7	42.3	46.9	46.8	44.5	49.6
1993	58.9	57.6	60.1	61.0	60.3	61.6	48.4	43.6	52.5	48.8	46.1	51.9
1994	60.5	58.9	62.0	62.7	61.0	64.3	49.6	48.7	50.3	51.5	48.3	55.0
1995	62.2	60.6	63.9	64.6	62.6	66.7	52.0	51.2	52.5	50.3	48.0	52.7
1996	64.7	63.1	66.3	67.0	65.5	68.4	55.9	54.5	57.1	50.9	47.0	55.6
1997	65.4	64.0	66.8	68.2	66.9	69.5	53.7	50.2	56.5	53.9	51.9	56.1
1998	65.6	63.0	68.1	68.5	66.2	70.8	56.6	52.9	59.7	51.7	48.9	54.7

NOTE: The Current Population Survey (CPS) questions used to obtain educational attainment were changed in 1992. Prior to 1992, "some college" includes those who had completed at least one year of college. From 1992 to 1998, "some college" includes those with an associate degree, vocational certificate, or baccalaureate degree. Included in total but not shown separately are other racial/ethnic groups.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Survey. In U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 1999* (NCES 1999-022), Table 59-2.

Appendix table 1-5. Total and full-time undergraduate enrollment at all institutions, by sex and race/ethnicity: fall 1990–96

Enrollment status, sex, and race ethnicity	1990	1991	1992	1993	1994	1995	1996
Total	12,110,847	12,595,335	12,693,778	12,482,813	12,417,701	12,399,826	12,424,570
Temporary residents	220,000	235,205	258,661	269,139	270,374	268,544	274,776
White, non-Hispanic	9,273,439	9,508,527	9,388,226	9,101,085	8,916,770	8,806,202	8,731,457
Asian/Pacific Islander	506,837	565,166	620,463	642,893	683,508	700,828	721,773
Black, non-Hispanic	1,148,979	1,231,252	1,282,732	1,292,621	1,319,684	1,336,052	1,354,910
Hispanic	866,096	949,346	1,032,817	1,064,348	1,109,931	1,167,472	1,218,711
American Indian/Alaskan Native	95,496	105,839	110,879	112,727	117,434	120,728	122,943
Women	6,672,254	6,962,645	7,049,665	6,935,687	6,933,359	6,932,456	6,948,950
Temporary residents	93,294	101,575	115,021	122,173	123,336	124,365	129,203
White, non-Hispanic	5,088,662	5,235,217	5,192,500	5,033,796	4,953,370	4,887,860	4,840,551
Asian/Pacific Islander	249,219	280,493	311,899	324,604	347,548	358,744	371,033
Black, non-Hispanic	700,590	752,604	786,609	792,427	816,172	828,672	841,234
Hispanic	484,931	531,103	579,329	597,193	624,149	662,310	694,994
American Indian/Alaskan Native	55,558	61,653	64,307	65,494	68,784	70,505	71,935
Men	5,438,593	5,632,690	5,644,113	5,547,126	5,484,342	5,467,370	5,475,620
Temporary residents	126,706	133,630	143,640	146,966	147,038	144,179	145,573
White, non-Hispanic	4,184,777	4,273,310	4,195,726	4,067,289	3,963,400	3,918,342	3,890,906
Asian/Pacific Islander	257,618	284,673	308,564	318,289	335,960	342,084	350,740
Black, non-Hispanic	448,389	478,648	496,123	500,194	503,512	507,380	513,676
Hispanic	381,165	418,243	453,488	467,155	485,782	505,162	523,717
American Indian/Alaskan Native	39,938	44,186	46,572	47,233	48,650	50,223	51,008
Full-time, total	7,096,494	7,346,260	7,369,223	7,302,852	7,287,543	7,275,785	7,340,530
Temporary residents	164,457	176,693	188,885	196,806	202,990	201,843	205,702
White, non-Hispanic	5,410,069	5,510,013	5,437,032	5,310,930	5,220,478	5,163,690	5,173,725
Asian/Pacific Islander	309,166	339,467	367,609	387,105	416,347	428,108	439,215
Black, non-Hispanic	678,434	733,802	753,189	763,883	777,098	778,659	795,368
Hispanic	483,309	528,946	561,566	581,418	604,721	636,116	657,342
American Indian/Alaskan Native	51,057	57,339	60,942	62,710	65,909	67,369	69,178
Women, full-time	3,713,333	3,861,956	3,895,813	3,872,354	3,899,481	3,928,344	3,986,969
Temporary residents	66,569	73,087	80,446	85,478	88,851	89,946	92,971
White, non-Hispanic	2,798,402	2,861,435	2,838,780	2,779,797	2,756,539	2,748,730	2,767,814
Asian/Pacific Islander	148,413	164,987	180,569	191,429	207,695	215,553	222,620
Black, non-Hispanic	400,468	433,871	447,586	454,108	468,089	472,825	485,722
Hispanic	271,097	296,318	314,275	326,522	341,016	362,999	378,227
American Indian/Alaskan Native	28,384	32,258	34,157	35,020	37,291	38,291	39,615
Men, full-time	3,383,161	3,484,304	3,473,410	3,430,498	3,388,062	3,347,441	3,353,561
Temporary residents	97,888	103,606	108,439	111,328	114,139	111,897	112,731
White, non-Hispanic	2,611,667	2,648,578	2,598,252	2,531,133	2,463,939	2,414,960	2,405,911
Asian/Pacific Islander	160,755	174,480	187,040	195,676	208,652	212,555	216,595
Black, non-Hispanic	277,966	299,931	305,603	309,775	309,009	305,834	309,646
Hispanic	212,212	232,628	247,291	254,896	263,705	273,117	279,115
American Indian/Alaskan Native	22,673	25,081	26,785	27,690	28,618	29,078	29,563

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment Survey.

Appendix table 1-6. Total and full-time enrollment of first-time, first-year undergraduate students at all institutions, by sex and race/ethnicity: fall 1990–96

Enrollment status, sex, and race/ethnicity	1990	1991	1992	1993	1994	1995	1996
Total	2,291,933	2,313,240	2,219,522	2,202,469	2,163,778	2,207,545	2,230,357
Temporary residents	39,895	41,749	42,014	41,834	41,082	41,108	42,088
White, non-Hispanic	1,704,178	1,691,467	1,600,109	1,560,531	1,519,331	1,541,430	1,548,087
Asian/Pacific Islander	98,761	104,021	108,570	116,261	122,070	122,882	123,997
Black, non-Hispanic	245,039	261,385	254,514	253,133	252,881	252,464	260,483
Hispanic	183,023	191,744	192,593	208,902	205,597	226,463	231,806
American Indian/Alaskan Native	21,037	22,874	21,722	21,808	22,817	23,198	23,896
Women	1,232,347	1,230,328	1,191,857	1,177,231	1,166,415	1,190,773	1,201,597
Temporary residents	17,633	18,451	18,813	19,241	18,874	19,158	19,679
White, non-Hispanic	911,553	892,965	855,155	828,874	813,494	824,497	825,270
Asian/Pacific Islander	48,931	52,269	54,302	58,230	61,716	62,262	62,981
Black, non-Hispanic	142,169	148,931	146,572	145,122	147,018	146,559	151,885
Hispanic	100,485	105,049	105,206	113,780	112,734	125,488	128,582
American Indian/Alaskan Native	11,576	12,663	11,809	11,984	12,579	12,809	13,200
Men	1,059,586	1,082,912	1,027,665	1,025,238	997,363	1,016,772	1,028,760
Temporary residents	22,262	23,298	23,201	22,593	22,208	21,950	22,409
White, non-Hispanic	792,625	798,502	744,954	731,657	705,837	716,933	722,817
Asian/Pacific Islander	49,830	51,752	54,268	58,031	60,354	60,620	61,016
Black, non-Hispanic	102,870	112,454	107,942	108,011	105,863	105,905	108,598
Hispanic	82,538	86,695	87,387	95,122	92,863	100,975	103,224
American Indian/Alaskan Native	9,461	10,211	9,913	9,824	10,238	10,389	10,696
Full-time, total	1,648,069	1,684,047	1,636,489	1,645,146	1,630,719	1,682,207	1,708,213
Temporary residents	30,874	32,273	32,482	32,854	32,923	33,061	33,893
White, non-Hispanic	1,229,684	1,236,339	1,192,005	1,182,449	1,163,754	1,194,415	1,208,127
Asian/Pacific Islander	71,859	75,677	79,193	84,209	90,095	91,361	93,351
Black, non-Hispanic	179,888	195,411	186,830	188,413	189,054	190,853	196,937
Hispanic	122,160	129,611	131,394	142,439	139,256	156,582	159,434
American Indian/Alaskan Native	13,604	14,736	14,585	14,782	15,637	15,935	16,471
Women, full-time	864,081	873,337	862,772	867,770	868,377	900,718	914,989
Temporary residents	13,210	13,798	14,205	14,747	14,679	15,048	15,367
White, non-Hispanic	636,946	631,966	621,634	615,815	612,067	631,296	638,032
Asian/Pacific Islander	35,303	38,011	39,662	42,274	45,643	46,539	47,594
Black, non-Hispanic	103,651	109,867	106,844	107,788	109,596	110,738	115,177
Hispanic	67,654	71,725	72,633	79,169	77,878	88,411	89,731
American Indian/Alaskan Native	7,317	7,970	7,794	7,977	8,514	8,686	9,088
Men, full-time	783,988	810,710	773,717	777,376	762,342	781,489	793,224
Temporary residents	17,664	18,475	18,277	18,107	18,244	18,013	18,526
White, non-Hispanic	592,738	604,373	570,371	566,634	551,687	563,119	570,095
Asian/Pacific Islander	36,556	37,666	39,531	41,935	44,452	44,822	45,757
Black, non-Hispanic	76,237	85,544	79,986	80,625	79,458	80,115	81,760
Hispanic	54,506	57,886	58,761	63,270	61,378	68,171	69,703
American Indian/Alaskan Native	6,287	6,766	6,791	6,805	7,123	7,249	7,383

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment Survey.

Appendix table 1-7. Among 1988 eighth graders who completed high school, the percentage who enrolled in postsecondary education by 1994, and percentage distribution according to type of institution, by disability status and type: 1994

Disability status and type	Total	4-year institutions	Public 2-year institutions	Other institutions[1]
Total	70.4	59.4	34.4	6.2
Does not have a disability	71.7	61.5	33.3	5.3
Has a disability	62.8	42.0	44.9	13.1
Visual impairment	70.4	48.4	44.2	7.4
Hearing impairment or deaf	60.2	39.8	47.0	13.2
Speech impairment	58.5	49.0	47.6	3.5
Orthopedic impairment	73.9	71.4	23.6	5.1
Learning disability	57.5	28.2	53.9	17.9
Other disability or impairment[2]	65.9	44.3	42.8	13.0

[1] Private for profit-institutions, public less-than-2-year institutions; or private, not-for-profit less-than-4-year institutions.

[2] Any other disability, including health problems, emotional problems, mental retardation, or other physical disabilities.

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, Third Follow-up survey, 1994 (NELS: 88/94), Data Analysis System (in U.S. Department of Education, National Center for Education Statistics. 1999. *Students with Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes*, NCES 1999-187, by Laura Horn and Jennifer Berktold)

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 1-8. Percentage distribution of 1995–96 undergraduate students, by disability status, age, institution type, receipt of financial aid, and enrollment intensity: 1996

Age, institution type, receipt of financial aid, and enrollment intensity	Total	Does not have a disability	Has a disability
Age			
18 or younger	10.2	10.3	8.2
19–23	44.7	45.0	37.8
24–29	17.9	18.3	13.6
30–39	15.0	14.8	17.7
40 or older	12.2	11.6	22.7
Average age	27.0	26.0	30.0
Institution type			
4-year institutions	46.1	46.7	39.6
Other institutions	53.9	53.3	60.4
Financial aid			
Received any financial aid	52.4	53.2	47.7
Received federal aid	39.3	40.0	33.8
Received grants	40.3	41.1	34.9
Received loans	31.1	31.7	25.7
Received employer aid	2.8	2.9	2.0
Received work-study	8.5	8.8	6.1
Received other aid	8.0	7.9	11.1
Enrollment intensity			
Full-time full-year	40.5	40.8	38.7
Full-time part-year	12.7	12.4	15.6
Part-time full-year	24.6	24.6	24.5
Part-time, part-year	22.2	22.3	21.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, National Education Longitudinal Study of 1988, Third Follow-up Survey, 1994 (NELS: 88/94), Data Analysis System (in U.S. Department of Education, National Center for Education Statistics. 1999. *Students with Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes*, NCES 1999-187, by Laura Horn and Jennifer Berktold).

Appendix table 1-9. Total and full-time undergraduate enrollment at 2-year institutions, by sex and race/ethnicity: fall 1990–96

Enrollment status, sex, and race/ethnicity	1990	1991	1992	1993	1994	1995	1996
Total	5,200,148	5,573,230	5,708,924	5,551,977	5,499,378	5,459,520	5,476,207
Temporary residents	67,529	73,725	90,839	91,834	92,220	89,297	92,400
White, non-Hispanic	3,909,526	4,125,460	4,108,008	3,933,871	3,820,766	3,752,368	3,709,054
Asian/Pacific Islander	219,191	258,244	294,266	300,704	318,042	319,542	327,999
Black, non-Hispanic	519,140	566,493	597,906	594,865	609,499	615,301	626,426
Hispanic	432,368	490,074	556,552	569,161	595,490	619,649	655,955
American Indian/Alaskan Native	52,394	59,234	61,353	61,542	63,361	63,363	64,373
Women	2,980,029	3,201,196	3,296,273	3,205,337	3,180,990	3,135,856	3,127,029
Temporary residents	32,446	35,540	45,024	46,528	46,861	46,113	48,213
White, non-Hispanic	2,244,867	2,374,733	2,377,380	2,275,822	2,212,780	2,150,761	2,107,152
Asian/Pacific Islander	109,413	129,428	150,058	153,672	163,251	164,442	169,229
Black, non-Hispanic	322,025	352,957	376,249	373,998	385,409	387,084	392,171
Hispanic	240,413	273,718	311,458	319,069	335,020	350,076	372,396
American Indian/Alaskan Native	30,865	34,820	36,104	36,248	37,669	37,380	37,868
Men	2,220,119	2,372,034	2,412,651	2,346,640	2,318,388	2,323,664	2,349,178
Temporary residents	35,083	38,185	45,815	45,306	45,359	43,184	44,187
White, non-Hispanic	1,664,659	1,750,727	1,730,628	1,658,049	1,607,986	1,601,607	1,601,902
Asian/Pacific Islander	109,778	128,816	144,208	147,032	154,791	155,100	158,770
Black, non-Hispanic	197,115	213,536	221,657	220,867	224,090	228,217	234,255
Hispanic	191,955	216,356	245,094	250,092	260,470	269,573	283,559
American Indian/Alaskan Native	21,529	24,414	25,249	25,294	25,692	25,983	26,505
Full-time, total	1,873,618	2,052,070	2,091,798	2,057,807	2,041,011	1,993,537	2,009,906
Temporary residents	36,215	39,671	45,766	48,229	49,869	48,068	48,928
White, non-Hispanic	1,375,799	1,479,121	1,477,967	1,426,491	1,382,761	1,337,624	1,334,522
Asian/Pacific Islander	76,906	92,123	103,316	109,387	117,904	117,434	117,865
Black, non-Hispanic	206,724	233,782	238,008	239,634	244,657	239,700	247,673
Hispanic	157,690	183,204	201,160	208,117	218,992	224,517	234,178
American Indian/Alaskan Native	20,284	24,169	25,581	25,949	26,828	26,194	26,740
Women, full-time	995,301	1,098,619	1,132,011	1,119,102	1,120,930	1,102,327	1,112,078
Temporary residents	16,480	18,260	21,887	23,724	24,314	23,757	24,366
White, non-Hispanic	720,191	780,078	787,839	763,319	746,728	726,198	723,438
Asian/Pacific Islander	35,777	43,668	49,981	53,389	57,715	57,771	58,250
Black, non-Hispanic	123,061	139,813	145,187	146,427	152,126	150,091	154,832
Hispanic	88,463	103,110	112,559	117,536	124,547	129,270	135,619
American Indian/Alaskan Native	11,329	13,690	14,558	14,707	15,500	15,240	15,573
Men, full-time	878,317	953,451	959,787	938,705	920,081	891,210	897,828
Temporary residents	19,735	21,411	23,879	24,505	25,555	24,311	24,562
White, non-Hispanic	655,608	699,043	690,128	663,172	636,033	611,426	611,084
Asian/Pacific Islander	41,129	48,455	53,335	55,998	60,189	59,663	59,615
Black, non-Hispanic	83,663	93,969	92,821	93,207	92,531	89,609	92,841
Hispanic	69,227	80,094	88,601	90,581	94,445	95,247	98,559
American Indian/Alaskan Native	8,955	10,479	11,023	11,242	11,328	10,954	11,167

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment Survey.

Appendix table 1-10. Total and full-time undergraduate enrollment at 4-year institutions, by sex and race/ethnicity: fall 1990–96

Enrollment status, sex, and race/ethnicity	1990	1991	1992	1993	1994	1995	1996
Total	6,910,699	7,022,105	6,984,854	6,930,836	6,918,323	6,940,306	6,948,363
Temporary residents	152,471	161,480	167,822	177,305	178,154	179,247	182,376
White, non-Hispanic	5,363,913	5,383,067	5,280,218	5,167,214	5,096,004	5,053,834	5,022,403
Asian/Pacific Islander	287,646	306,922	326,197	342,189	365,466	381,286	393,774
Black, non-Hispanic	629,839	664,759	684,826	697,756	710,185	720,751	728,484
Hispanic	433,728	459,272	476,265	495,187	514,441	547,823	562,756
American Indian/Alaskan Native	43,102	46,605	49,526	51,185	54,073	57,365	58,570
Women	3,692,225	3,761,449	3,753,392	3,730,350	3,752,369	3,796,600	3,821,921
Temporary residents	60,848	66,035	69,997	75,645	76,475	78,252	80,990
White, non-Hispanic	2,843,795	2,860,484	2,815,120	2,757,974	2,740,590	2,737,099	2,733,399
Asian/Pacific Islander	139,806	151,065	161,841	170,932	184,297	194,302	201,804
Black, non-Hispanic	378,565	399,647	410,360	418,429	430,763	441,588	449,063
Hispanic	244,518	257,385	267,871	278,124	289,129	312,234	322,598
American Indian/Alaskan Native	24,693	26,833	28,203	29,246	31,115	33,125	34,067
Men	3,218,474	3,260,656	3,231,462	3,200,486	3,165,954	3,143,706	3,126,442
Temporary residents	91,623	95,445	97,825	101,660	101,679	100,995	101,386
White, non-Hispanic	2,520,118	2,522,583	2,465,098	2,409,240	2,355,414	2,316,735	2,289,004
Asian/Pacific Islander	147,840	155,857	164,356	171,257	181,169	186,984	191,970
Black, non-Hispanic	251,274	265,112	274,466	279,327	279,422	279,163	279,421
Hispanic	189,210	201,887	208,394	217,063	225,312	235,589	240,158
American Indian/Alaskan Native	18,409	19,772	21,323	21,939	22,958	24,240	24,503
Full-time, total	5,222,876	5,294,190	5,277,425	5,245,045	5,246,532	5,282,248	5,330,624
Temporary residents	128,242	137,022	143,119	148,577	153,121	153,775	156,774
White, non-Hispanic	4,034,270	4,030,892	3,959,065	3,884,439	3,837,717	3,826,066	3,839,203
Asian/Pacific Islander	232,262	247,344	264,293	277,718	298,443	310,674	321,350
Black, non-Hispanic	471,710	500,020	515,181	524,249	332,441	538,959	547,695
Hispanic	325,619	345,742	360,406	373,301	385,729	411,599	423,164
American Indian/Alaskan Native	30,773	33,170	35,361	36,761	39,081	41,175	42,438
Women, full-time	2,718,032	2,763,337	2,763,802	2,753,252	2,778,551	2,826,017	2,874,891
Temporary residents	50,089	54,827	58,559	61,754	64,537	66,189	68,605
White, non-Hispanic	2,078,211	2,081,357	2,050,941	2,016,478	2,009,811	2,022,532	2,044,376
Asian/Pacific Islander	112,636	121,319	130,588	138,040	149,980	157,782	164,370
Black, non-Hispanic	277,407	294,058	302,399	307,681	315,963	322,734	330,890
Hispanic	182,634	193,208	201,716	208,986	216,469	233,729	242,608
American Indian/Alaskan Native	17,055	18,568	19,599	20,313	21,791	23,051	24,042
Men, full-time	2,504,844	2,530,853	2,513,623	2,491,793	2,467,981	2,456,231	2,455,733
Temporary residents	78,153	82,195	84,560	86,823	88,584	87,586	88,169
White, non-Hispanic	1,956,059	1,949,535	1,908,124	1,867,961	1,827,906	1,803,534	1,794,827
Asian/Pacific Islander	119,626	126,025	133,705	139,678	148,463	152,892	156,980
Black, non-Hispanic	194,303	205,962	212,782	216,568	216,478	216,225	216,805
Hispanic	142,985	152,534	158,690	164,315	169,260	177,870	180,556
American Indian/Alaskan Native	13,718	14,602	15,762	16,448	17,290	18,124	18,396

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment Survey.

Appendix table 1-11. Total and full-time enrollment of first-time, first-year students at 4-year institutions, by sex and race/ethnicity: fall 1990–96

Enrollment status, sex, and race/ethnicity	1990	1991	1992	1993	1994	1995	1996
Total	1,170,510	1,171,679	1,136,878	1,154,793	1,150,582	1,192,660	1,206,020
Temporary residents	23,034	23,697	24,142	23,614	23,512	23,454	23,885
White, non-Hispanic	872,579	862,361	828,943	832,587	829,365	858,785	866,751
Asian/Pacific Islander	55,058	57,369	57,782	60,689	65,087	65,605	67,578
Black, non-Hispanic	127,824	132,726	130,732	133,830	133,567	134,662	136,104
Hispanic	84,314	87,412	87,300	95,545	89,614	100,260	101,476
American Indian/Alaskan Native	7,701	8,114	7,979	8,528	9,437	9,894	10,226
Women	621,021	624,070	606,714	616,510	621,697	649,818	657,236
Temporary residents	9,565	9,829	10,312	10,299	10,156	10,357	10,660
White, non-Hispanic	457,866	454,585	439,093	440,431	444,156	463,043	467,252
Asian/Pacific Islander	27,678	29,408	29,371	30,863	33,780	34,286	35,306
Black, non-Hispanic	74,600	77,169	75,284	77,174	78,315	79,628	80,930
Hispanic	47,091	48,541	48,313	53,046	50,059	56,922	57,361
American Indian/Alaskan Native	4,221	4,538	4,341	4,697	5,231	5,582	5,727
Men	549,489	547,609	530,164	538,283	528,885	542,842	548,784
Temporary residents	13,469	13,868	13,830	13,315	13,356	13,097	13,225
White, non-Hispanic	414,713	407,776	389,850	392,156	385,209	395,742	399,499
Asian/Pacific Islander	27,380	27,961	28,411	29,826	31,307	31,319	32,272
Black, non-Hispanic	53,224	55,557	55,448	56,656	55,252	55,034	55,174
Hispanic	37,223	38,871	38,987	42,499	39,555	43,338	44,115
American Indian/Alaskan Native	3,480	3,576	3,638	3,831	4,206	4,312	4,499
Full-time, total	1,063,327	1,055,135	1,045,258	1,061,360	1,062,215	1,105,857	1,120,255
Temporary residents	20,964	21,704	22,154	21,869	21,861	21,852	22,229
White, non-Hispanic	795,602	778,028	765,177	769,877	770,297	800,376	810,016
Asian/Pacific Islander	50,998	53,101	54,354	56,738	61,362	61,844	63,851
Black, non-Hispanic	114,904	118,583	117,744	120,028	120,143	122,518	124,031
Hispanic	74,290	76,978	79,066	85,583	80,622	90,945	91,456
American Indian/Alaskan Native	6,569	6,741	6,763	7,265	7,930	8,322	8,672
Women, full-time	559,986	557,918	554,699	564,297	571,015	599,809	608,400
Temporary residents	8,662	8,981	9,437	9,501	9,397	9,631	9,862
White, non-Hispanic	413,832	406,538	402,480	404,842	409,708	429,307	434,984
Asian/Pacific Islander	25,597	27,228	27,702	28,927	31,928	32,365	33,404
Black, non-Hispanic	66,879	68,694	67,634	69,248	70,226	72,114	73,533
Hispanic	41,457	42,756	43,811	47,815	45,396	51,774	51,774
American Indian/Alaskan Native	3,559	3,721	3,635	3,964	4,360	4,618	4,843
Men, full-time	503,341	497,217	490,559	497,063	491,200	506,048	511,855
Temporary residents	12,302	12,723	12,717	12,368	12,464	12,221	12,367
White, non-Hispanic	381,770	371,490	362,697	365,035	360,589	371,069	375,032
Asian/Pacific Islander	25,401	25,873	26,652	27,811	29,434	29,479	30,447
Black, non-Hispanic	48,025	49,889	50,110	50,780	49,917	50,404	50,498
Hispanic	32,833	34,222	35,255	37,768	35,226	39,171	39,682
American Indian/Alaskan Native	3,010	3,020	3,128	3,301	3,570	3,704	3,829

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Fall Enrollment Survey.

Appendix table 1-12. Percentage distribution of 1995–96 undergraduates according to major field of study, by disability status

Major field of study	Total	Does not have a disability	Has a disability
Science and engineering, total	28.3	28.5	27.2
Computer/information science	3.4	3.3	3.9
Mathematics	0.6	0.6	0.2
Physical sciences	1.0	1.0	0.6
Life sciences	5.7	5.7	3.4
Social/behavioral sciences	9.5	9.7	9.4
Engineering	8.1	8.2	9.7
Humanities	14.6	14.5	17.6
Education	8.5	8.7	8.3
Business/management	19.7	19.8	17.4
Health	12.7	12.8	11.4
Vocational/technical	2.7	2.6	3.8
Other technical/professional	13.5	13.3	14.2

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:96), Undergraduate Data Analysis System (in U.S. Department of Education, National Center for Education Statistics. 1999. *Students with Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes*, NCES 1999-187, by Laura Horn and Jennifer Berktold).

Appendix table 1-13. Total undergraduate enrollment in engineering programs, by sex, and by race/ethnicity: 1987–97

Year	Total	Men	Women	White, non-Hispanic	Asian/Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native
Number								
1987	392,198	331,917	60,281	320,763	32,795	19,142	18,253	1,245
1988	385,412	325,024	60,388	310,972	34,051	20,405	18,700	1,284
1989	378,277	318,067	60,210	303,580	33,360	21,013	19,007	1,317
1990	380,287	318,471	61,816	298,307	35,210	23,562	21,601	1,607
1991	379,977	316,441	63,536	293,482	37,803	24,563	22,441	1,688
1992	382,525	316,460	66,065	292,528	38,480	25,722	23,863	1,932
1993	375,944	309,412	66,532	285,672	37,835	25,920	24,586	1,931
1994	367,298	300,643	66,655	278,051	37,009	24,994	25,216	2,028
1995	363,315	296,029	67,286	271,316	38,329	25,569	25,998	2,103
1996	356,177	288,559	67,618	264,503	37,873	24,922	26,483	2,396
1997	365,358	294,593	70,765	268,072	39,475	24,809	30,580	2,422
Percent								
1987	100	84.6	15.4	81.8	8.4	4.9	4.7	0.3
1988	100	84.3	15.7	80.7	8.8	5.3	4.9	0.3
1989	100	84.1	15.9	80.3	8.8	5.6	5.0	0.3
1990	100	83.7	16.3	78.4	9.3	6.2	5.7	0.4
1991	100	83.3	16.7	77.2	9.9	6.5	5.9	0.4
1992	100	82.7	17.3	76.5	10.1	6.7	6.2	0.5
1993	100	82.3	17.7	76.0	10.1	6.9	6.5	0.5
1994	100	81.9	18.1	75.7	10.1	6.8	6.9	0.6
1995	100	81.5	18.5	74.7	10.5	7.0	7.2	0.6
1996	100	81.0	19.0	74.3	10.6	7.0	7.4	0.7
1997	100	80.6	19.4	73.4	10.8	6.8	8.4	0.7

SOURCE: Engineering Workforce Commission of the American Association of Engineering Societies, special tabulations.

Appendix table 1-14. Full-time first-year undergraduate enrollment in engineering programs, by sex, and by race/ethnicity: 1987–97

Year	Total	Men	Women	White, non-Hispanic	Asian/Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native
Number								
1987	95,453	80,449	15,004	84,489	7,074	6,145	4,465	354
1988	98,009	82,172	15,837	85,629	7,510	7,075	4,872	433
1989	95,420	79,888	15,532	82,484	7,669	7,284	5,228	424
1990	94,346	77,672	16,674	79,565	7,926	8,370	5,885	526
1991	93,002	76,018	16,984	78,166	8,212	8,305	5,949	582
1992	93,427	74,670	17,947	77,523	8,153	8,924	6,347	633
1993	88,875	71,921	16,954	73,750	7,969	8,271	6,247	607
1994	85,047	68,545	16,502	70,901	7,673	7,372	6,157	617
1995	86,299	69,102	17,197	71,308	7,767	7,890	6,500	601
1996	85,375	68,375	17,000	70,635	7,997	7,482	6,602	656
1997	90,882	72,943	17,943	75,034	9,125	7,403	7,757	688
Percent								
1987	100	84.3	15.7	88.5	7.4	6.4	4.7	0.4
1988	100	83.8	16.2	87.4	7.7	7.2	5.0	0.4
1989	100	83.7	16.3	86.4	8.0	7.6	5.5	0.4
1990	100	82.3	17.7	84.3	8.4	8.9	6.2	0.6
1991	100	81.7	18.3	84.0	8.8	8.9	6.4	0.6
1992	100	80.1	19.2	83.0	8.7	9.6	6.8	0.7
1993	100	80.9	19.1	83.0	9.0	9.3	7.0	0.7
1994	100	80.6	19.4	83.4	9.0	8.7	7.2	0.7
1995	100	80.1	19.9	82.6	9.0	9.1	7.5	0.7
1996	100	80.1	19.9	82.7	9.4	8.8	7.7	0.5
1997	100	80.3	19.7	82.6	10.0	8.1	8.5	0.8

SOURCE: Engineering Workforce Commission of the American Association of Engineering Societies, special tabulations.

Appendix table 1-15. Percentage of 25- to 29-year-old high school completers who had completed college, by race/ethnicity and sex: March 1971–98

March	Total			White, non-Hispanic			Black, non-Hispanic			Hispanic		
	Total	Men	Women	Total	Men	Women	Total	Men	Women	Total	Men	Women
1971	22.0	25.8	18.1	23.1	27.0	19.1	11.5	12.1	10.9	10.5	15.4	5.8
1972	23.7	27.3	20.2	24.9	28.6	21.1	13.1	11.6	14.3	7.8	9.5	6.4
1973	23.6	26.8	20.5	24.8	28.3	21.3	12.7	11.3	13.8	10.8	12.4	9.7
1974	25.3	28.7	21.8	27.2	31.1	23.2	11.5	12.3	11.0	10.1	8.9	11.2
1975	26.3	29.7	22.9	27.5	31.1	23.7	14.7	15.3	14.2	16.6	19.7	13.4
1976	28.0	32.0	24.1	29.3	33.5	25.0	17.6	16.5	18.6	12.7	17.9	8.2
1977	28.1	31.2	25.1	29.8	33.4	26.3	16.9	16.5	17.3	11.5	11.3	11.7
1978	27.3	30.2	24.4	28.9	32.6	25.3	15.2	13.6	16.5	17.1	16.4	17.9
1979	27.0	29.9	24.2	28.6	31.6	25.5	16.6	17.8	15.7	12.9	14.2	11.4
1980	26.3	28.1	24.5	28.0	30.1	26.0	15.0	14.0	15.8	13.2	15.0	11.8
1981	24.7	26.6	22.8	26.3	28.4	24.2	14.9	15.4	14.5	12.5	14.4	10.9
1982	25.2	26.9	23.4	26.7	28.8	24.6	15.6	14.6	16.4	15.9	17.8	14.2
1983	26.2	27.8	24.6	27.4	29.4	25.4	16.2	16.5	15.9	17.8	16.8	18.8
1984	25.5	27.1	24.0	27.0	28.5	25.4	14.8	17.1	13.0	18.1	17.0	19.2
1985	25.7	26.9	24.6	27.3	28.6	26.0	14.4	12.9	15.6	18.2	18.6	17.7
1986	26.0	26.7	25.3	28.1	29.1	27.1	14.2	11.9	16.3	15.3	15.4	15.2
1987	25.6	26.1	25.2	27.6	28.0	27.1	13.8	14.0	13.6	14.5	15.7	13.4
1988	26.4	27.6	25.2	28.0	29.1	26.9	14.8	15.3	14.4	18.1	19.8	16.3
1989	27.3	28.3	26.5	29.5	30.5	28.5	15.4	15.0	15.6	16.5	15.7	17.2
1990	27.1	28.0	26.2	29.3	30.0	28.6	16.4	18.6	14.5	14.0	12.9	15.2
1991	27.2	27.0	27.3	29.7	29.7	29.8	13.4	13.7	13.1	16.3	14.4	18.1
1992	27.3	26.9	27.8	30.0	29.5	30.4	13.7	14.2	13.2	15.6	14.3	17.0
1993	27.3	27.2	27.4	29.8	30.0	29.5	16.1	14.8	17.2	13.6	12.1	15.3
1994	27.0	26.6	27.4	29.7	29.8	29.6	16.2	14.0	17.9	13.3	11.3	15.5
1995	28.4	28.4	28.5	31.2	30.9	31.4	17.8	19.7	16.1	15.5	14.0	17.1
1996	31.1	30.2	32.0	34.1	33.6	34.7	17.0	13.9	19.6	16.4	17.1	15.6
1997	31.8	30.7	32.9	35.2	34.1	36.2	16.4	13.7	18.5	17.8	16.1	19.6
1998	31.0	29.6	32.4	34.5	32.9	36.1	17.9	16.1	19.3	16.5	15.9	17.1

NOTE: The Current Population Survey (CPS) questions used to obtain educational attainment were changed in 1992. Prior to 1992, "completed college" includes those who have completed 4 or more years of college. For 1992 to 1998, "completed college" includes those with a bachelor's degree or higher. Included in total but not shown separately are other racial/ethnic groups.

SOURCE: U.S. Department of Commerce, Bureau of the Census, March Current Population Surveys. In National Center for Education Statistics, *The Condition of Education 1999* (NCES 1999-022), Table 59-3.

Appendix table 1-16. Percentage distribution of 1989–90 beginning postsecondary students according to postsecondary persistence status and highest undergraduate degree attained, by disability status: spring 1994

Persistence status and highest degree	Total	Does not have a disability	Has a disability
Persistence			
Attained degree or enrolled	63.2	64.1	52.9
Attained degree or certificate	50.0	50.7	41.1
Enrolled in 1994	13.3	13.4	11.8
Not enrolled/no degree or certificate	36.8	36.0	47.2
Highest undergraduate degree attained by 1994			
None	50.1	49.3	58.9
Certificate	12.9	12.5	18.8
Associate's	11.2	11.6	6.0
Bachelor's	25.8	26.6	16.3

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1990 Beginning Postsecondary Students Longitudinal Study, Second Follow-up (BPS:90/94), Data Analysis System (in U.S. Department of Education, National Center for Education Statistics. 1999. *Students with Disabilities in Postsecondary Education: A Profile of Preparation, Participation, and Outcomes*, NCES 1999-187, by Laura Horn and Jennifer Berktold).

Appendix table 2-1. Associate's degrees, by sex and field: 1983–96

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Sex and field	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Both sexes														
All disciplines	461,888	457,851	459,087	451,258	440,816	441,093	440,375	459,048	486,297	508,704	519,098	546,574	544,094	540,644
Science and engineering, total	79,500	83,005	84,708	80,129	78,238	76,691	73,954	72,748	71,026	70,297	71,335	75,132	70,590	67,820
Mathematics	789	783	790	605	667	682	654	760	670	744	743	766	783	759
Computer science	9,918	12,913	12,890	10,962	9,286	8,893	8,192	7,840	7,970	9,632	9,532	9,868	9,627	9,401
Physical sciences	1,415	1,303	1,002	1,013	1,090	1,106	1,029	1,212	1,218	1,086	1,224	1,413	1,459	1,560
Earth, atmospheric, and ocean sciences	250	214	63	38	40	33	28	33	28	143	168	226	186	189
Agricultural sciences	2,358	2,079	2,023	1,778	1,569	1,742	1,656	1,696	1,724	1,978	1,896	1,938	1,910	1,895
Biological sciences	990	1,394	1,233	1,095	995	937	999	1,055	1,142	1,378	1,499	1,907	1,901	2,074
Psychology	973	1,088	983	939	1,016	1,033	1,113	1,116	997	1,209	1,235	1,756	1,600	1,584
Social sciences	3,830	3,764	3,579	3,548	3,878	3,198	3,327	3,693	3,090	3,837	4,597	4,863	4,477	5,090
Engineering	3,273	4,557	3,923	5,289	4,589	3,896	2,735	2,405	2,513	2,715	2,526	2,844	2,285	2,048
Science technologies	1,463	1,395	1,164	1,081	947	769	898	903	953	969	1,013	1,150	970	965
Engineering technologies	51,317	50,671	53,667	49,880	49,815	49,646	48,342	46,938	45,106	40,592	40,946	42,414	39,190	35,982
Other science and engineering technologies	87	87	23	28	50	129	141	110	70	172	52	265	364	556
Interdisciplinary or other sciences	2,837	2,757	3,368	3,873	4,296	4,627	4,840	4,987	5,545	5,842	5,904	5,722	5,838	5,717
Women														
All disciplines	253,058	253,334	254,762	253,303	248,589	249,181	253,250	266,615	286,254	299,848	305,835	324,327	324,390	327,554
Science and engineering, total	18,282	19,807	19,589	18,667	18,106	17,478	17,534	17,571	17,621	19,093	19,696	21,718	20,352	21,070
Mathematics	304	287	301	234	248	250	239	271	264	280	315	329	345	295
Computer science	5,008	6,402	6,251	5,318	4,408	4,297	4,044	3,898	3,938	4,909	4,837	4,921	4,631	4,539
Physical sciences	514	464	344	430	427	458	472	506	539	495	561	630	686	730
Earth, atmospheric, and ocean sciences	54	36	16	12	14	11	8	21	5	27	38	64	38	58
Agricultural sciences	976	779	822	669	567	640	691	663	605	653	616	705	610	645
Biological sciences	510	784	679	640	573	558	576	611	685	805	886	1,137	1,144	1,244
Psychology	635	728	671	645	722	728	830	830	740	871	953	1,323	1,154	1,179
Social sciences	2,292	2,411	2,285	2,254	2,522	1,886	1,939	2,154	1,936	2,264	2,781	3,079	2,852	3,434
Engineering	358	515	422	662	497	426	327	288	280	355	330	370	307	269
Science technologies	545	506	466	422	376	318	336	298	379	396	396	447	347	378
Engineering technologies	5,796	5,603	5,721	5,540	5,657	5,593	5,576	5,503	5,329	4,926	4,817	5,515	4,994	5,035
Other science and engineering technologies	2	4	0	1	2	18	29	14	8	16	8	20	33	42
Interdisciplinary or other sciences	1,288	1,288	1,611	1,840	2,093	2,295	2,467	2,514	2,913	3,096	3,158	3,178	3,211	3,222

See explanatory information and SOURCE at end of table

Appendix table 2-1. Associate's degrees, by sex and field: 1983–96

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Sex and field	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Men														
All disciplines	208,830	204,517	204,325	197,955	192,227	191,912	187,125	192,433	200,043	208,856	213,263	222,247	219,704	213,090
Science and engineering, total	61,218	63,198	65,119	61,462	60,132	59,213	56,420	55,177	53,405	51,204	51,639	53,414	50,238	46,750
Mathematics	485	496	489	371	419	432	415	489	406	464	428	437	438	464
Computer science	4,910	6,511	6,639	5,644	4,878	4,596	4,148	3,942	4,032	4,723	4,695	4,947	4,996	4,862
Physical sciences	901	839	658	583	663	648	557	706	679	591	663	783	773	830
Earth, atmospheric, and ocean sciences	196	178	47	26	26	22	20	12	23	116	130	162	148	131
Agricultural sciences	1,382	1,300	1,201	1,109	1,002	1,102	965	1,033	1,119	1,325	1,280	1,233	1,300	1,250
Biological sciences	480	610	554	455	422	379	423	444	457	573	613	770	757	830
Psychology	338	360	312	294	294	305	283	286	257	338	282	433	446	405
Social sciences	1,538	1,353	1,294	1,294	1,356	1,312	1,388	1,539	1,154	1,573	1,816	1,784	1,625	1,656
Engineering	2,915	4,042	3,501	4,627	4,092	3,470	2,408	2,117	2,233	2,360	2,196	2,474	1,978	1,779
Science technologies	918	889	598	659	571	451	562	605	574	573	617	703	623	587
Engineering technologies	45,521	45,068	47,946	44,340	44,158	44,053	42,766	41,435	39,777	35,666	36,129	36,899	34,196	30,947
Other science and engineering technologies	85	83	23	27	48	111	112	96	62	156	44	245	331	514
Interdisciplinary or other sciences	1,549	1,469	1,757	2,033	2,203	2,332	2,373	2,473	2,632	2,746	2,746	2,544	2,627	2,495

NOTE: Unlike in other degrees tables, the science and engineering total includes degrees in science and engineering technologies.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-2. Associate's degrees, by race/ethnicity and field: 1985–96

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Race/ethnicity and field	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996
Total										
All disciplines	459,087	440,816	440,375	459,048	486,297	508,704	519,098	546,574	544,094	540,644
Science and engineering, total	87,263	80,423	78,132	77,018	75,084	69,296	71,042	74,832	70,404	67,462
Mathematics	789	667	654	760	670	744	743	765	783	758
Computer science	12,890	9,286	8,192	7,840	7,970	9,602	9,512	9,767	9,627	9,198
Physical sciences[1]	1,065	1,131	1,060	1,248	1,249	1,229	1,392	1,639	1,459	1,749
Agricultural sciences	2,393	1,824	1,893	1,983	2,039	2,252	2,227	2,247	1,910	2,278
Biological sciences	1,233	995	999	1,055	1,142	1,378	1,471	1,907	1,901	2,074
Psychology	983	1,016	1,113	1,116	997	1,209	1,237	1,756	1,600	1,584
Social sciences	2,681	2,660	2,836	3,002	2,577	3,232	4,011	4,263	4,477	4,158
Engineering	3,923	4,588	2,732	2,402	2,510	2,715	2,525	2,828	2,285	2,030
Science technologies	1,164	947	898	903	953	889	905	1,040	970	875
Engineering technologies	51,579	47,434	46,180	44,739	42,595	38,015	38,473	39,889	39,190	33,597
Other science and engineering technologies	23	50	141	110	70	172	52	265	364	556
Interdisciplinary or other sciences	8,540	9,825	11,434	11,860	12,312	7,859	8,494	8,466	5,838	8,605
White, non-Hispanic										
All disciplines	355,422	345,546	330,557	343,629	376,869	388,049	392,637	419,962	408,126	403,072
Science and engineering, total	66,770	63,046	57,998	56,214	59,092	51,380	51,789	57,055	51,706	49,341
Mathematics	525	481	461	538	477	522	509	497	479	439
Computer science	9,730	6,879	5,583	5,166	5,577	6,109	6,006	6,636	6,471	6,096
Physical sciences[1]	734	917	841	974	968	848	995	1,230	1,024	1,183
Agricultural sciences	2,138	1,571	1,705	1,775	1,847	2,038	2,017	1,959	1,633	2,067
Biological sciences	676	590	685	709	759	992	977	1,304	1,197	1,356
Psychology	680	781	845	840	738	918	894	1,321	1,146	1,094
Social sciences	1,390	1,715	1,792	1,912	1,609	1,974	2,347	2,729	2,628	2,458
Engineering	2,260	3,235	1,986	1,770	1,867	2,086	1,886	2,133	1,658	1,484
Science technologies	931	785	582	564	693	640	644	794	683	637
Engineering technologies	40,934	37,383	33,584	31,699	33,792	28,242	28,442	31,457	29,646	25,480
Other science and engineering technologies	15	39	111	69	51	132	28	211	275	457
Interdisciplinary or other sciences	6,757	8,670	9,823	10,198	10,714	6,879	7,044	6,784	4,866	6,590
Asian/Pacific Islander										
All disciplines	10,165	11,329	11,761	12,687	15,069	15,369	16,280	18,555	20,976	22,630
Science and engineering, total	2,536	3,331	2,778	2,632	2,593	2,671	2,806	2,923	3,181	3,333
Mathematics	63	69	65	75	65	64	69	77	93	103
Computer science	448	395	336	336	323	484	459	489	513	512
Physical sciences[1]	51	43	62	91	86	106	76	122	124	165
Agricultural sciences	4	10	6	8	8	10	6	10	10	7
Biological sciences	31	59	52	80	126	137	146	172	190	216
Psychology	8	19	14	18	24	34	33	37	57	57
Social sciences	39	87	105	92	64	98	183	192	248	263
Engineering	184	369	194	151	146	185	136	184	152	146
Science technologies	20	22	19	16	31	29	38	35	56	54
Engineering technologies	1,570	1,989	1,663	1,499	1,496	1,311	1,358	1,258	1,458	1,391
Other science and engineering technologies	0	0	0	1	4	4	2	0	13	22
Interdisciplinary or other sciences	118	269	262	265	220	209	300	347	267	397

See explanatory information and SOURCE at end of table

Appendix table 2-2. Associate's degrees, by race/ethnicity and field: 1985–96

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Race/ethnicity and field	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996
Black, non-Hispanic										
All disciplines	35,861	33,858	32,185	32,882	37,854	38,721	41,260	45,597	45,923	49,245
Science and engineering, total	5,475	5,297	4,895	4,842	5,342	4,724	5,361	6,112	5,834	6,061
Mathematics	24	38	25	20	27	27	26	39	45	36
Computer science	914	923	803	856	894	1,066	978	1,081	1,046	1,088
Physical sciences[1]	48	71	45	57	78	71	70	90	93	112
Agricultural sciences	19	27	17	25	14	15	15	20	23	21
Biological sciences	93	100	63	71	57	75	93	96	147	114
Psychology	65	73	83	110	103	78	109	149	126	147
Social sciences	342	285	304	313	332	342	471	415	669	457
Engineering	148	249	120	88	126	135	201	179	148	134
Science technologies	61	29	27	36	69	60	63	91	72	97
Engineering technologies	3,395	3,100	2,829	2,648	3,030	2,445	2,698	3,197	3,015	2,883
Other science and engineering technologies	8	9	22	25	11	21	20	37	35	75
Interdisciplinary or other sciences	358	393	557	593	601	389	617	718	415	897
Hispanic										
All disciplines	22,783	22,804	23,475	24,569	29,019	30,253	33,015	35,557	38,499	39,115
Science and engineering, total	3,774	4,315	4,200	4,047	4,368	4,439	5,014	5,293	5,583	5,518
Mathematics	38	39	47	65	55	63	67	85	99	108
Computer science	638	581	562	526	622	855	1,019	989	1,035	923
Physical sciences[1]	60	37	34	41	45	42	52	92	70	109
Agricultural sciences	53	91	114	70	57	70	88	109	136	89
Biological sciences	135	153	88	104	130	126	160	203	208	221
Psychology	43	64	123	113	88	116	141	154	193	179
Social sciences	287	301	309	272	313	369	472	549	586	549
Engineering	126	369	176	98	153	132	153	148	161	132
Science technologies	67	55	57	57	94	111	97	87	91	51
Engineering technologies	2,084	2,359	2,232	2,298	2,411	2,317	2,398	2,478	2,777	2,644
Other science and engineering technologies	0	1	8	10	4	14	1	4	28	1
Interdisciplinary or other sciences	243	265	450	393	396	224	366	395	199	512
American Indian/Alaskan Native										
All disciplines	2,953	3,049	3,102	3,290	3,772	3,874	4,213	4,879	5,352	5,221
Science and engineering, total	474	450	488	434	551	451	568	735	740	781
Mathematics	4	4	9	14	13	8	15	11	13	9
Computer science	52	45	58	70	78	61	101	105	111	127
Physical sciences[1]	8	4	2	4	7	5	7	20	22	26
Agricultural sciences	29	28	23	21	37	38	41	69	54	48
Biological sciences	8	17	19	13	22	15	25	36	40	42
Psychology	11	16	13	9	16	31	18	38	35	42
Social sciences	40	54	46	59	63	75	100	122	121	159
Engineering	11	27	12	12	21	14	8	18	22	11
Science technologies	6	2	1	2	10	3	4	6	10	2
Engineering technologies	267	219	257	168	232	175	210	263	286	242
Other science and engineering technologies	0	1	0	0	0	0	0	0	3	1
Interdisciplinary or other sciences	38	33	48	62	52	26	39	47	23	72

See explanatory information and SOURCE at end of table.

Appendix table 2-2. Associate's degrees, by race/ethnicity and field: 1985–96

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Race/ethnicity and field	1985	1987	1989	1990	1991	1992	1993	1994	1995	1996
Other/unknown race/ethnicity										
All disciplines	25,477	19,745	33,326	36,054	16,737	24,411	22,669	11,855	15,307	11,339
Science and engineering, total	6,778	2,947	6,699	7,948	2,169	4,528	4,402	1,535	2,167	1,279
Mathematics	96	24	29	30	17	22	10	17	15	15
Computer science	834	298	663	735	321	814	712	224	191	209
Physical sciences[1]	144	25	37	48	35	113	125	29	49	68
Agricultural sciences	116	85	5	66	55	49	27	35	36	28
Biological sciences	270	41	57	54	26	0	32	40	42	65
Psychology	162	55	8	19	20	19	25	33	24	33
Social sciences	524	196	231	313	148	307	318	101	90	111
Engineering	1,038	219	161	213	129	83	63	77	67	53
Science technologies	70	50	209	227	45	40	48	23	44	25
Engineering technologies	2,649	1,809	5,082	5,960	1,108	3,021	2,987	822	1,582	625
Other science and engineering technologies	0	0	0	5	0	0	1	13	5	0
Interdisciplinary or other sciences	875	145	217	278	265	60	54	121	22	47
Non-resident alien										
All disciplines	6,426	4,485	5,969	5,937	6,977	8,027	9,024	10,169	9,911	10,022
Science and engineering, total	1,456	1,037	1,074	901	969	1,103	1,102	1,179	1,193	1,149
Mathematics	39	12	18	18	16	38	47	39	39	48
Computer science	274	165	187	151	155	213	237	243	260	243
Physical sciences[1]	20	34	39	33	30	44	67	56	77	86
Agricultural sciences	34	12	23	18	21	32	33	45	18	18
Biological sciences	20	35	35	24	22	33	38	56	77	60
Psychology	14	8	27	7	8	13	17	24	19	32
Social sciences	59	22	49	41	48	67	120	155	135	161
Engineering	156	120	83	70	68	80	78	89	77	70
Science technologies	9	4	3	1	11	6	11	4	14	9
Engineering technologies	680	575	533	467	526	504	380	414	426	332
Other science and engineering technologies	0	0	0	0	0	1	0	0	5	0
Interdisciplinary or other sciences	151	50	77	71	64	72	74	54	46	90

[1] In all tables showing degrees before 1995 by race/ethnicity, "Physical science" for all years includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry. See NOTE.

NOTE: Unlike in other degrees tables, the science and engineering total includes degrees in science and engineering technologies. Data on race/ethnicity of degree recipients were collected biennially from 1981 through 1989 and annually thereafter. Data on race/ethnicity were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF. Nonresident aliens include foreign citizens on temporary visas only. No racial/ethnic data are collected for this group.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-3. Associate's degrees in science and engineering, by race/ethnicity, sex and field: 1996

Race/ethnicity and sex	Science and engineering, total	Mathematics	Computer science	Physical sciences[1]	Agricultural sciences	Biological sciences	Psychology	Social science	Engineering	Science technologies	Engineering technologies	Other S&E technologies	Interdisciplinary/ other sciences
Total, all races/ethnicities	67,462	758	9,198	1,749	2,278	2,074	1,584	4,158	2,030	875	33,597	556	8,605
Female	20,981	295	4,444	788	684	1,244	1,179	2,632	265	370	4,635	42	4,403
Male	46,481	463	4,754	961	1,594	830	405	1,526	1,765	505	28,962	514	4,202
White, non-Hispanic	49,341	439	6,096	1,183	2,067	1,356	1,094	2,458	1,484	637	25,480	457	6,590
Female	14,515	177	2,786	523	600	822	831	1,555	191	266	3,338	31	3,395
Male	34,826	262	3,310	660	1,467	534	263	903	1,293	371	22,142	426	3,195
Asian/Pacific Islander	3,333	103	512	165	7	216	57	263	146	54	1,391	22	397
Female	1,097	42	234	83	4	125	37	162	14	29	159	1	207
Male	2,236	61	278	82	3	91	20	101	132	25	1,232	21	190
Black, non-Hispanic	6,061	36	1,088	112	21	114	147	457	134	97	2,883	75	897
Female	2,293	10	664	56	8	67	105	296	24	38	579	9	437
Male	3,768	26	424	56	13	47	42	161	110	59	2,304	66	460
Hispanic	5,518	108	923	109	89	221	179	549	132	51	2,644	1	512
Female	1,871	41	490	46	37	141	128	353	19	22	345	1	248
Male	3,647	67	433	63	52	80	51	196	113	29	2,299	0	264
American Indian/ Alaskan Native	781	9	127	26	48	42	42	159	11	2	242	1	72
Female	376	2	77	13	18	28	36	118	2	2	41	0	39
Male	405	7	50	13	30	14	6	41	9	0	201	1	33
Other/unknown race/ethnicity	1,279	15	209	68	28	65	33	111	53	25	625	0	47
Female	392	6	85	27	12	32	22	64	7	8	95	0	34
Male	887	9	124	41	16	33	11	47	46	17	530	0	13
Non-resident alien	1,149	48	243	86	18	60	32	161	70	9	332	0	90
Female	437	17	108	40	5	29	20	84	8	5	78	0	43
Male	712	31	135	46	13	31	12	77	62	4	254	0	47

[1] In this table "Physical sciences" include earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry. See NOTE.

NOTE: Unlike in other degrees tables, the science and engineering total includes degrees in science and engineering technologies. Data on race/ethnicity were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF. Nonresident aliens include foreign citizens on temporary visas only. No racial/ethnic data are collected for this group.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-4. Bachelor's degrees, by field: 1966–96

Year	All fields	Science & engineering fields: Total, science and engineering	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Biological/ agricultural sciences	Psychology	Social sciences	All other fields
1966	524,008	184,313	35,826	15,462	1,712	20,090	89	29,804	16,966	64,364	339,695
1967	562,369	199,832	36,197	15,847	1,936	21,308	222	32,489	19,435	72,398	362,537
1968	636,863	226,597	37,680	17,037	2,339	23,625	459	36,141	23,921	85,395	410,266
1969	734,003	262,189	41,582	18,623	2,924	27,330	933	41,280	29,458	100,059	471,814
1970	798,070	284,230	44,770	18,173	3,351	27,565	1,544	44,447	33,784	110,596	513,840
1971	846,110	294,357	45,248	17,948	3,562	24,918	2,388	45,728	38,154	116,411	551,753
1972	894,110	306,459	45,711	16,814	4,055	23,848	3,402	48,291	43,421	120,917	587,651
1973	930,272	321,085	46,779	16,415	4,374	23,223	4,305	54,687	48,096	123,206	609,187
1974	954,376	326,230	43,248	16,453	4,823	21,813	4,757	61,906	52,256	120,974	628,146
1975	931,663	313,555	39,824	16,001	4,877	18,346	5,039	66,321	51,436	111,711	618,108
1976	934,443	309,491	38,790	16,497	5,046	16,085	5,664	70,004	50,363	107,042	624,952
1977	928,228	303,798	41,357	16,937	5,653	14,303	6,426	70,589	47,794	100,739	624,430
1978	930,201	303,555	47,251	17,143	6,003	12,701	7,224	69,215	45,057	98,961	626,646
1979	931,340	303,162	53,469	17,257	6,082	11,901	8,769	66,781	43,012	95,891	628,178
1980	940,251	304,695	58,810	17,470	6,155	11,473	11,213	63,942	42,513	93,119	635,556
1981	946,877	306,792	63,717	17,446	6,694	11,173	15,233	59,922	41,364	91,243	640,085
1982	964,043	315,023	67,460	17,263	7,061	11,708	20,431	57,535	41,539	92,026	649,020
1983	980,679	317,571	72,670	16,197	7,298	12,662	24,682	55,411	40,825	87,826	663,108
1984	986,345	324,284	76,153	15,831	7,925	13,511	32,435	52,351	40,375	85,703	662,061
1985	990,877	332,273	77,572	16,270	7,576	15,389	39,121	51,312	40,237	84,796	658,604
1986	1,000,204	335,405	76,820	15,784	6,076	16,531	42,195	50,441	40,937	86,621	664,799
1987	1,003,532	331,526	74,425	15,464	4,689	16,515	39,927	48,571	43,195	88,740	672,006
1988	1,006,033	322,482	70,154	14,255	3,554	15,981	34,896	46,925	45,378	91,339	683,551
1989	1,030,171	322,821	66,947	14,148	3,181	15,314	30,963	45,531	48,954	97,783	707,350
1990	1,062,151	329,094	64,705	13,425	2,776	14,674	27,695	46,451	54,018	105,350	733,057
1991	1,107,997	337,675	62,187	13,678	2,728	14,784	25,410	48,783	58,893	111,212	770,322
1992	1,150,072	355,265	61,941	13,875	3,201	14,931	24,958	54,193	64,033	118,133	794,807
1993	1,179,278	366,035	62,705	14,188	3,503	14,853	24,580	59,621	67,251	119,334	813,243
1994	1,183,141	373,261	63,012	14,655	3,868	14,632	24,553	65,268	69,768	117,505	809,880
1995	1,174,436	378,148	63,371	14,897	4,478	13,851	24,769	71,470	72,601	112,711	796,288
1996	1,179,815	384,674	63,114	15,396	4,457	13,076	24,545	78,469	73,828	111,789	795,141

NOTE: For the years 1966–70 the science and engineering total includes degrees granted for "other" sciences; these degrees are not included in any of the specific categories. These degrees constitute less than 2 percent of the total.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-5. Bachelor's degrees awarded to women, by field: 1966–96

Year	All fields	Science & engineering fields									All other fields
		Total, science and engineering	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Biological/ agricultural sciences	Psychology	Social sciences	
1966	222,971	45,634	146	2,172	161	6,689	13	7,465	6,928	22,060	177,337
1967	238,133	50,787	184	2,205	197	7,310	24	7,948	7,778	25,141	187,346
1968	277,116	61,397	216	2,435	234	8,786	55	8,966	10,130	30,575	215,719
1969	321,138	72,917	312	2,661	291	10,227	121	10,090	12,700	36,515	248,221
1970	344,465	79,702	337	2,626	343	10,317	199	10,700	14,717	40,463	264,763
1971	367,687	85,039	361	2,631	383	9,494	324	11,016	17,037	43,793	282,648
1972	390,479	90,037	492	2,653	495	9,323	461	11,777	20,154	44,682	300,442
1973	408,738	95,995	576	2,589	532	9,345	640	13,779	22,986	45,548	312,743
1974	423,469	102,578	698	2,767	768	8,939	780	16,732	26,407	45,487	320,891
1975	423,239	102,814	845	3,011	827	7,700	956	19,384	27,103	42,988	320,425
1976	425,894	103,921	1,317	3,217	922	6,554	1,124	21,836	27,376	41,575	321,973
1977	429,107	104,993	2,044	3,377	1,174	5,949	1,539	23,250	27,102	40,558	324,114
1978	439,135	107,667	3,482	3,690	1,294	5,246	1,864	24,363	26,540	41,188	331,468
1979	449,946	109,915	4,881	3,899	1,387	4,958	2,463	24,787	26,363	41,177	340,031
1980	462,501	113,480	5,952	4,185	1,462	4,848	3,399	25,011	26,923	41,700	349,021
1981	472,541	115,815	7,063	4,309	1,666	4,781	4,953	24,657	26,917	41,469	356,726
1982	486,500	121,399	8,275	4,526	1,807	5,058	7,115	24,313	27,783	42,522	365,101
1983	497,284	123,191	9,652	4,611	1,848	5,550	8,992	24,279	27,597	40,662	374,093
1984	499,595	125,134	10,729	4,656	1,934	5,987	12,066	23,243	27,426	39,093	374,461
1985	504,217	128,871	11,246	4,836	1,861	7,094	14,431	23,140	27,422	38,841	375,346
1986	510,061	130,662	11,138	4,696	1,354	7,680	15,126	22,953	28,246	39,469	379,399
1987	518,529	131,545	11,404	4,672	1,060	7,682	13,889	22,403	29,796	40,639	386,984
1988	524,797	130,933	10,779	4,582	847	7,412	11,353	22,375	31,794	41,791	393,864
1989	542,605	133,483	10,188	4,371	801	7,050	9,545	21,679	34,663	45,186	409,122
1990	566,284	140,012	9,973	4,319	775	6,811	8,374	22,401	38,619	48,740	426,272
1991	599,045	148,347	9,665	4,425	782	6,980	7,514	23,776	42,738	52,467	450,698
1992	624,677	159,486	9,636	4,586	1,024	6,986	7,210	26,720	46,903	56,421	465,191
1993	641,742	165,720	9,981	4,764	1,050	6,999	6,951	29,182	49,222	57,571	476,022
1994	646,080	170,977	10,403	5,067	1,203	6,768	7,020	31,921	51,019	57,576	475,103
1995	643,290	175,931	10,950	5,292	1,524	6,491	7,063	35,555	52,963	56,093	467,359
1996	651,815	181,333	11,316	5,702	1,485	5,992	6,772	39,369	53,863	56,834	470,482

NOTE: For the years 1966–70 the science and engineering total includes degrees granted for "other" sciences; these degrees are not included in any of the specific categories. These degrees constitute less than 2 percent of the total.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-6. Women as a percentage of all bachelor's degree recipients, by field: 1966–96

Year	All fields	Science & engineering fields									All other fields	Index of dissimilarity[1]
		Total, science and engineering	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Biological/agricultural sciences	Psychology	Social sciences		
1966	42.6	24.8	0.4	14.0	9.4	33.3	14.6	25.0	40.8	34.3	52.2	25.6
1967	42.3	25.4	0.5	13.9	10.2	34.3	10.8	24.5	40.0	34.7	51.7	24.6
1968	43.5	27.1	0.6	14.3	10.0	37.2	12.0	24.8	42.3	35.8	52.6	23.8
1969	43.8	27.8	0.8	14.3	10.0	37.4	13.0	24.4	43.1	36.5	52.6	23.1
1970	43.2	28.0	0.8	14.5	10.2	37.4	12.9	24.1	43.6	36.6	51.5	22.0
1971	43.5	28.9	0.8	14.7	10.8	38.1	13.6	24.1	44.7	37.6	51.2	20.8
1972	43.7	29.4	1.1	15.8	12.2	39.1	13.6	24.4	46.4	37.0	51.1	20.5
1973	43.9	29.9	1.2	15.8	12.2	40.2	14.9	25.2	47.8	37.0	51.3	20.5
1974	44.4	31.4	1.6	16.8	15.9	41.0	16.4	27.0	50.5	37.6	51.1	19.3
1975	45.4	32.8	2.1	18.8	17.0	42.0	19.0	29.2	52.7	38.5	51.8	18.8
1976	45.6	33.6	3.4	19.5	18.3	40.7	19.8	31.2	54.4	38.8	51.5	17.9
1977	46.2	34.6	4.9	19.9	20.8	41.6	23.9	32.9	56.7	40.3	51.9	17.5
1978	47.2	35.5	7.4	21.5	21.6	41.3	25.8	35.2	58.9	41.6	52.9	17.6
1979	48.3	36.3	9.1	22.6	22.8	41.7	28.1	37.1	61.3	42.9	54.1	18.1
1980	49.2	37.2	10.1	24.0	23.8	42.3	30.3	39.1	63.3	44.8	54.9	18.0
1981	49.9	37.8	11.1	24.7	24.9	42.8	32.5	41.1	65.1	45.4	55.7	18.4
1982	50.5	38.5	12.3	26.2	25.6	43.2	34.8	42.3	66.9	46.2	56.3	18.4
1983	50.7	38.8	13.3	28.5	25.3	43.8	36.4	43.8	67.6	46.3	56.4	18.3
1984	50.7	38.6	14.1	29.4	24.4	44.3	37.2	44.4	67.9	45.6	56.6	18.7
1985	50.9	38.8	14.5	29.7	24.6	46.1	36.9	45.1	68.2	45.8	57.0	19.0
1986	51.0	39.0	14.5	29.8	22.3	46.5	35.8	45.5	69.0	45.6	57.1	19.1
1987	51.7	39.7	15.3	30.2	22.6	46.5	34.8	46.1	69.0	45.8	57.6	18.8
1988	52.2	40.6	15.4	32.1	23.8	46.4	32.5	47.7	70.1	45.8	57.6	18.1
1989	52.7	41.3	15.2	30.9	25.2	46.0	30.8	47.6	70.8	46.2	57.8	17.7
1990	53.3	42.5	15.4	32.2	27.9	46.4	30.2	48.2	71.5	46.3	58.1	17.1
1991	54.1	43.9	15.5	32.4	28.7	47.2	29.6	48.7	72.6	47.2	58.5	16.4
1992	54.3	44.9	15.6	33.1	32.0	46.8	28.9	49.3	73.2	47.8	58.5	16.0
1993	54.4	45.3	15.9	33.6	30.0	47.1	28.3	48.9	73.2	48.2	58.5	15.8
1994	54.6	45.8	16.5	34.6	31.1	46.3	28.6	48.9	73.1	49.0	58.7	15.6
1995	54.8	46.5	17.3	35.5	34.0	46.9	28.5	49.7	73.0	49.8	58.7	15.3
1996	55.2	47.1	17.9	37.0	33.3	45.8	27.6	50.2	73.0	50.8	59.2	15.2

[1] The dissimilarity index is a measure of the percentage of women baccalaureate recipients who would need to switch fields of study to match the percentage distribution of men receiving baccalaureate degrees. The index is calculated as the sum of the absolute difference between the percentage of women bachelor's degree recipients earning degrees in each field and the percentage of men bachelor's degree recipients earning degrees in each field divided by 2.

NOTE: For the years 1966–70 the science and engineering total includes degrees granted for "other" sciences; these degrees are not included in any of the specific categories. These degrees constitute less than 2 percent of the total.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-7. Bachelor's degrees in science and engineering, by sex and detailed field: 1996

Field	Both sexes	Men	Women	Percent women
Science and engineering, total	384,674	203,341	181,333	47.1
Engineering, total	63,114	51,798	11,316	17.9
Aerospace engineering	1,642	1,395	247	15.0
Chemical engineering	6,708	4,537	2,171	32.4
Civil engineering	12,053	9,629	2,424	20.1
Electrical engineering	16,667	14,695	1,972	11.8
Mechanical engineering	14,509	12,773	1,736	12.0
Materials engineering	1,004	781	223	22.2
Industrial engineering	3,727	2,630	1,097	29.4
Other engineering	6,804	5,358	1,446	21.3
Physical sciences, total	15,396	9,694	5,702	37.0
Astronomy	148	93	55	37.2
Chemistry	10,713	6,091	4,622	43.1
Physics	3,703	3,019	684	18.5
Other physical sciences	832	491	341	41.0
Earth, atmospheric, and ocean sciences, total	4,457	2,972	1,485	33.3
Atmospheric sciences	434	348	86	19.8
Earth sciences	3,838	2,504	1,334	34.8
Oceanography	185	120	65	35.1
Mathematics and statistics	13,076	7,084	5,992	45.8
Computer science	24,545	17,773	6,772	27.6
Agricultural sciences	16,388	9,884	6,504	39.7
Biological sciences	62,081	29,216	32,865	52.9
Psychology	73,828	19,965	53,863	73.0
Social sciences, total	111,789	54,955	56,834	50.8
Economics	17,896	12,524	5,372	30.0
Political science and public administration	39,928	21,578	18,350	46.0
Sociology	24,169	7,794	16,375	67.8
Anthropology	6,389	2,331	4,058	63.5
Linguistics	619	181	438	70.8
History of science	21	12	9	42.9
Area and ethnic studies	5,197	1,980	3,217	61.9
Other social sciences	17,570	8,555	9,015	51.3

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-8. Bachelor's degrees in science and engineering, by field, citizenship, and race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Total, all recipients							
Total, all fields	1,030,171	1,062,151	1,107,997	1,150,072	1,179,278	1,183,141	1,174,436	1,179,815
Total science and engineering	337,431	345,793	356,785	376,933	388,435	395,380	399,809	405,921
Physical sciences [1]	17,329	16,203	16,407	17,076	17,691	18,525	19,375	19,853
Mathematics	15,314	14,674	14,784	14,851	14,870	14,431	13,759	13,201
Computer science	30,963	27,695	25,410	24,854	24,477	24,458	24,662	24,405
Biological sciences	36,949	38,040	40,351	43,835	47,877	52,213	56,804	61,998
Agricultural sciences	8,795	8,622	8,643	10,492	11,827	13,165	14,847	16,669
Social sciences	112,180	121,838	130,111	139,884	141,772	139,858	134,431	132,901
Psychology	48,954	54,018	58,893	64,043	67,251	69,768	72,601	73,828
Engineering	66,947	64,703	62,186	61,898	62,670	62,962	63,330	63,066
Non-S&E [2]	692,740	716,358	751,212	773,139	790,843	787,761	774,627	773,894
	U.S. citizens and permanent residents, total [3]							
Total, all fields	1,003,714	1,035,598	1,078,340	1,121,525	1,146,907	1,148,914	1,137,424	1,142,028
Total science and engineering	325,108	333,475	344,061	364,695	374,633	381,451	385,055	391,074
Physical sciences [1]	16,724	15,608	15,799	16,469	16,927	17,812	18,652	19,167
Mathematics	14,771	14,150	14,206	14,259	14,318	13,869	13,166	12,643
Computer science	28,828	25,629	23,373	22,880	22,273	22,185	22,367	22,225
Biological sciences	36,076	37,173	39,288	42,842	46,660	51,058	55,523	60,633
Agricultural sciences	8,529	8,348	8,373	10,289	11,478	12,919	14,589	16,397
Social sciences	109,862	119,288	127,216	136,902	138,391	136,273	130,579	128,893
Psychology	48,443	53,493	58,202	63,379	66,421	68,913	71,659	72,812
Engineering	61,875	59,786	57,604	57,675	58,165	58,422	58,520	58,304
Non-S&E [2]	678,606	702,123	734,279	756,830	772,274	767,463	752,369	750,954
	White, non-Hispanics							
Total, all fields	840,326	856,686	892,363	921,453	931,603	918,124	892,785	884,128
Total science and engineering	266,862	270,225	278,190	292,614	297,171	297,616	294,773	295,082
Physical sciences [1]	14,238	13,055	13,145	13,678	13,941	14,616	14,952	15,088
Mathematics	12,287	11,765	11,649	11,723	11,669	11,089	10,343	9,823
Computer science	21,711	18,918	17,349	16,844	16,155	15,816	15,532	15,470
Biological sciences	28,404	28,814	30,264	32,506	35,080	37,942	40,628	43,680
Agricultural sciences	7,938	7,658	7,704	9,382	10,556	11,733	13,120	14,646
Social sciences	91,697	98,385	104,783	111,389	111,154	106,863	100,558	97,372
Psychology	40,506	44,136	48,134	52,066	53,763	54,870	55,914	55,905
Engineering	50,081	47,494	45,162	45,026	44,853	44,687	43,726	43,098
Non-S&E [2]	573,464	586,461	614,173	628,839	634,432	620,508	598,012	589,046

See explanatory information and SOURCE at end of table.

Appendix table 2-8. Bachelor's degrees in science and engineering, by field, citizenship, and race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Asians/Pacific Islanders							
Total, all fields	37,573	38,027	41,725	46,616	50,587	54,675	59,295	63,117
Total science and engineering	19,138	19,437	20,552	22,635	24,504	26,420	29,128	31,031
Physical sciences [1]	922	937	983	1,001	1,098	1,096	1,347	1,559
Mathematics	1,019	874	915	857	915	926	965	935
Computer science	2,268	2,144	2,010	2,082	2,245	2,247	2,365	2,448
Biological sciences	2,907	3,245	3,559	4,402	5,103	5,959	7,043	7,958
Agricultural sciences	144	126	128	154	163	173	287	312
Social sciences	4,228	4,469	4,852	5,724	6,035	6,726	7,005	7,354
Psychology	1,575	1,630	1,885	2,150	2,538	2,777	3,331	3,666
Engineering	6,075	6,012	6,220	6,265	6,407	6,516	6,785	6,799
Non-S&E [2]	18,435	18,590	21,173	23,981	26,083	28,255	30,167	32,086
Index of dissimilarity [4]	20.4	21.0	19.6	18.5	18.1	17.8	17.7	17.5
	Black, non-Hispanics							
Total, all fields	56,837	59,301	65,009	71,311	76,667	82,316	85,287	89,554
Total science and engineering	17,385	18,230	19,987	22,431	24,421	26,289	27,528	29,055
Physical sciences [1]	697	650	753	816	836	921	1,034	1,100
Mathematics	792	720	811	904	965	992	995	981
Computer science	2,457	2,247	1,997	2,090	2,213	2,398	2,498	2,415
Biological sciences	1,916	1,994	2,111	2,385	2,739	2,980	3,231	3,811
Agricultural sciences	143	171	162	206	219	268	263	363
Social sciences	6,570	7,226	8,236	9,489	10,254	10,835	10,921	11,357
Psychology	2,743	3,150	3,688	4,179	4,618	5,236	5,741	6,028
Engineering	2,067	2,072	2,229	2,362	2,577	2,659	2,845	3,000
Non-S&E [2]	39,452	41,071	45,022	48,880	52,246	56,027	57,759	60,499
Index of dissimilarity [4]	3.6	3.2	2.8	2.8	2.9	3.6	3.9	4.0
	Hispanics							
Total, all fields	41,361	43,864	49,027	53,007	57,845	62,683	66,691	71,015
Total science and engineering	13,327	13,918	15,351	17,391	18,442	20,529	22,190	23,791
Physical sciences [1]	563	522	533	546	599	733	800	872
Mathematics	373	413	480	482	470	543	536	585
Computer science	1,195	1,085	1,215	1,173	1,096	1,135	1,307	1,280
Biological sciences	2,090	2,119	2,264	2,477	2,652	2,901	3,090	3,521
Agricultural sciences	196	218	213	214	217	336	386	506
Social sciences	4,197	4,645	5,334	6,519	6,860	7,748	7,877	8,260
Psychology	2,152	2,405	2,746	3,247	3,587	3,990	4,543	5,036
Engineering	2,561	2,511	2,566	2,733	2,961	3,143	3,651	3,731
Non-S&E [2]	28,034	29,946	33,676	35,616	39,403	42,154	44,501	47,224
Index of dissimilarity [4]	2.6	2.2	2.1	2.5	1.7	1.8	2.0	1.8

See explanatory information and SOURCE at end of table.

Appendix table 2-8. Bachelor's degrees in science and engineering, by field, citizenship, and race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	American Indians/Alaskan Natives							
Total, all fields	3,967	4,212	4,486	5,130	5,574	6,064	6,454	6,813
Total science and engineering	1,238	1,271	1,344	1,561	1,819	2,004	2,126	2,268
Physical sciences [1]	62	73	69	63	93	83	98	104
Mathematics	53	45	43	46	55	59	58	53
Computer science	90	84	80	79	81	78	110	89
Biological sciences	145	130	176	181	211	246	285	316
Agricultural sciences	58	59	53	60	64	109	124	139
Social sciences	445	523	[illegible]	639	804	817	823	854
Psychology	208	211	235	311	335	394	407	[illegible]
Engineering	177	146	158	182	176	218	221	243
Non-S&E [3]	2,729	2,941	3,142	3,569	3,755	4,060	4,328	4,545
Index of dissimilarity [4]	2.0	2.9	2.2	2.1	2.9	2.8	2.0	2.5
	U.S. citizens and permanent residents, unknown race/ethnicity							
Total, all fields	23,650	33,508	25,730	24,008	24,631	25,052	[illegible]	27,401
Total science and engineering	7,158	10,394	8,637	8,063	8,276	8,593	9,310	9,847
Physical sciences [1]	242	371	316	365	360	363	[illegible]	444
Mathematics	247	333	308	247	244	260	269	266
Computer science	1,107	1,151	722	612	483	511	555	523
Biological sciences	614	871	914	891	875	1,030	1,246	1,347
Agricultural sciences	50	116	113	273	259	300	409	431
Social sciences	2,725	4,040	3,481	3,142	3,284	3,284	3,395	3,696
Psychology	1,259	1,961	1,514	1,426	1,580	1,646	1,723	1,707
Engineering	914	1,551	1,269	1,107	1,191	1,199	1,292	1,433
Non-S&E [3]	16,492	23,114	17,093	15,945	16,355	16,459	17,602	17,554
Index of dissimilarity [4]	4.7	3.0	3.3	2.3	2.3	2.4	1.9	3.0
	Nonresident aliens [5]							
Total, all fields	26,457	26,553	29,657	28,547	32,371	34,227	37,012	37,787
Total science and engineering	12,323	12,318	12,724	12,238	13,802	13,929	14,754	14,847
Physical sciences [1]	605	595	608	607	764	713	723	686
Mathematics	543	524	578	592	552	562	593	558
Computer science	2,135	2,066	2,037	1,974	2,204	2,273	2,295	2,180
Biological sciences	873	867	1,063	993	1,217	1,155	1,281	1,365
Agricultural sciences	266	274	270	203	349	246	258	272
Social sciences	2,318	2,550	2,895	2,982	3,381	3,585	3,852	4,008
Psychology	511	525	691	664	830	855	942	1,016
Engineering	5,072	4,917	4,582	4,223	4,505	4,540	4,810	4,762
Non-S&E [3]	14,134	14,235	16,933	16,309	18,569	20,298	22,258	22,940

See explanatory information and SOURCE at end of table.

Appendix table 2-8. Bachelor's degrees in science and engineering, by field, citizenship, and race/ethnicity: 1989–96

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[1] In all tables showing degrees before 1995 by race/ethnicity, "Physical science" for all years includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry. See NOTE.

[2] Non-S&E refers to non-science and non-engineering.

[3] Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

[4] The dissimilarity index is a measure of the percentage of baccalaureate recipients in a racial/ethnic group who would need to switch fields of study to match the percentage distribution by field of white students receiving baccalaureate degrees. The index is calculated as the sum of the absolute difference between the percentage of degree recipients in a particular racial/ethnic group earning degrees in each field and the percentage of white degree recipients earning degrees in each field divided by 2.

[5] Nonresident aliens include foreign citizens on temporary visas only. No racial/ethnic data are collected for this group.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-9. Percentage distribution of bachelor's degrees in science and engineering to U.S. citizens and permanent residents, by field and race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
				All U.S. citizens and permanent residents[2]				
Total science and engineering	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Physical sciences[1]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mathematics	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Computer science	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Biological sciences	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agricultural sciences	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Social sciences	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Psychology	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
				White, non-Hispanics				
Total science and engineering	82.1	81.0	80.9	80.2	79.3	78.0	76.6	75.5
Physical sciences[1]	85.1	83.6	83.2	83.1	82.4	82.1	80.2	78.7
Mathematics	83.2	83.1	82.0	82.2	81.5	80.0	78.6	77.7
Computer science	75.3	73.8	74.2	73.6	72.5	71.3	69.4	69.6
Biological sciences	78.7	77.5	77.0	75.9	75.2	74.3	73.2	72.0
Agricultural sciences	93.1	91.7	92.0	91.2	92.0	90.8	89.9	89.3
Social sciences	83.5	82.5	82.4	81.4	80.3	78.4	77.0	75.5
Psychology	83.6	82.5	82.7	82.2	80.9	79.6	78.0	76.8
Engineering	80.9	79.4	78.4	78.1	77.1	76.5	74.7	73.9
				Asians/Pacific Islanders				
Total science and engineering	5.9	5.8	6.0	6.2	6.5	6.9	7.6	7.9
Physical sciences[1]	5.5	6.0	6.2	6.1	6.5	6.2	7.2	8.1
Mathematics	6.9	6.2	6.4	6.0	6.4	6.7	7.3	7.4
Computer science	7.9	8.4	8.6	9.1	10.1	10.1	10.6	11.0
Biological sciences	8.1	8.7	9.1	10.3	10.9	11.7	12.7	13.1
Agricultural sciences	1.7	1.5	1.5	1.5	1.4	1.3	2.0	1.9
Social sciences	3.8	3.7	3.8	4.2	4.4	4.9	5.4	5.7
Psychology	3.3	3.0	3.2	3.4	3.8	4.0	4.6	5.0
Engineering	9.8	10.1	10.8	10.9	11.0	11.2	11.6	11.7
				Black, non-Hispanics				
Total science and engineering	5.3	5.5	5.8	6.2	6.5	6.9	7.1	7.4
Physical sciences[1]	4.2	4.2	4.8	5.0	4.9	5.2	5.5	5.7
Mathematics	5.4	5.1	5.7	6.3	6.7	7.2	7.6	7.8
Computer science	8.5	8.8	8.5	9.1	9.9	10.8	11.2	10.9
Biological sciences	5.3	5.4	5.4	5.6	5.9	5.8	5.8	6.3
Agricultural sciences	1.7	2.0	1.9	2.0	1.9	2.1	1.8	2.2
Social sciences	6.0	6.1	6.5	6.9	7.4	8.0	8.4	8.8
Psychology	5.7	5.9	6.3	6.6	7.0	7.6	8.0	8.3
Engineering	3.3	3.5	3.9	4.1	4.4	4.6	4.9	5.1

See explanatory information and SOURCE at end of table.

Appendix table 2-9. Percentage distribution of bachelor's degrees in science and engineering to U.S. citizens and permanent residents, by field and race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Hispanics							
Total science and engineering	4.1	4.2	4.5	4.8	4.9	5.4	5.8	6.1
Physical sciences[1]	3.4	3.3	3.4	3.3	3.5	4.1	4.3	4.5
Mathematics	2.5	2.9	3.4	3.4	3.3	3.9	4.1	4.6
Computer science	4.1	4.2	5.2	5.1	4.9	5.1	5.8	5.8
Biological sciences	5.8	5.7	5.8	5.8	5.7	5.7	5.6	5.8
Agricultural sciences	2.3	2.6	2.5	2.1	1.9	2.6	2.6	3.1
Social sciences	3.8	3.9	4.2	4.8	5.0	5.7	6.0	6.4
Psychology	4.4	4.5	4.7	5.1	5.4	5.8	6.3	6.9
Engineering	4.1	4.2	4.5	4.7	5.1	5.4	6.2	6.4
	American Indians/Alaskan Natives							
Total science and engineering	0.4	0.4	0.4	0.4	0.5	0.5	0.6	0.6
Physical sciences[1]	0.4	0.5	0.4	0.4	0.5	0.5	0.5	0.5
Mathematics	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Computer science	0.3	0.3	0.3	0.3	0.4	0.4	0.5	0.4
Biological sciences	0.4	0.3	0.4	0.4	0.5	0.5	0.5	0.5
Agricultural sciences	0.7	0.7	0.6	0.6	0.6	0.8	0.8	0.8
Social sciences	0.4	0.4	0.4	0.5	0.6	0.6	0.6	0.7
Psychology	0.4	0.4	0.4	0.5	0.5	0.6	0.6	0.6
Engineering	0.3	0.2	0.3	0.3	0.3	0.4	0.4	0.4
	U.S. citizens and permanent residents, unknown race/ethnicity							
Total science and engineering	2.2	3.1	2.5	2.2	2.2	2.3	2.4	2.5
Physical sciences[1]	1.4	2.4	2.0	2.2	2.1	2.0	2.3	2.3
Mathematics	1.7	2.4	2.2	1.7	1.7	1.9	2.0	2.1
Computer science	3.8	4.5	3.1	2.7	2.2	2.3	2.5	2.4
Biological sciences	1.7	2.3	2.3	2.1	1.9	2.0	2.2	2.2
Agricultural sciences	0.6	1.4	1.3	2.7	2.3	2.3	2.8	2.6
Social sciences	2.5	3.4	2.7	2.3	2.4	2.4	2.6	2.9
Psychology	2.6	3.7	2.6	2.2	2.4	2.4	2.4	2.3
Engineering	1.5	2.6	2.2	1.9	2.0	2.1	2.2	2.5

[1] In all tables showing degrees before 1995 by race/ethnicity, "Physical science" for all years includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry. See NOTE.

[2] Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-10. Bachelor's degrees, by detailed field and race/ethnicity of recipient: 1996

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Field	Total, all recipients	U.S. citizens and permanent residents [1]							Non-resident aliens [2]
		Total	White, non-Hispanics	Asians/ Pacific Islanders	Black, non-Hispanics	Hispanics	American Indians/ Alaskan Natives	Unknown	
Total, all fields	1,179,815	1,142,028	884,128	63,117	89,554	71,015	6,813	27,401	37,787
Total science and engineering	384,674	369,927	276,786	30,419	28,397	22,886	2,149	9,290	14,747
Engineering	63,114	58,351	43,143	6,800	3,000	3,731	243	1,434	4,763
Aerospace engineering	1,642	1,519	1,172	159	51	89	5	43	123
Chemical engineering	6,708	6,139	4,577	735	337	331	31	128	569
Civil engineering	12,053	11,615	9,117	986	409	738	59	306	438
Electrical engineering	16,667	14,680	9,427	2,688	1,035	1,052	55	423	1,987
Industrial engineering	3,727	3,279	2,350	322	238	316	8	45	448
Materials engineering	1,004	975	787	88	29	42	4	25	29
Mechanical engineering	14,509	13,727	10,688	1,177	632	849	57	324	782
Other engineering	6,804	6,417	5,025	645	269	314	24	140	387
Sciences	321,560	311,576	233,643	23,619	25,397	19,155	1,906	7,856	9,984
Physical sciences	15,396	14,764	11,078	1,466	1,040	767	81	332	632
Astronomy	148	140	107	15	3	6	0	9	8
Chemistry	10,713	10,298	7,487	1,172	789	616	57	177	415
Physics	3,703	3,510	2,842	236	176	113	21	122	193
Other physical sciences	832	816	642	43	72	32	3	24	16
Earth, atmospheric, & ocean sciences	4,457	4,403	4,010	93	60	105	23	112	54
Atmospheric sciences	434	433	403	9	7	7	1	6	1
Geosciences	3,838	3,790	3,447	79	48	91	20	105	48
Oceanography	185	180	160	5	5	7	2	1	5
Mathematics	13,076	12,525	9,799	910	942	556	53	265	551
Computer sciences	24,545	22,359	15,577	2,454	2,427	1,284	89	528	2,186
Biological sciences	62,081	60,714	43,739	7,967	3,812	3,531	317	1,348	1,367
Biology, general	45,612	44,668	32,343	5,130	3,330	2,707	223	935	944
Biochemistry and biophysics	3,385	3,237	1,974	923	110	112	16	102	148
Botany	404	395	338	23	1	11	4	18	9
Cell and molecular biology	2,103	2,055	1,092	711	51	106	8	87	48
Microbiology/bacteriology	2,245	2,186	1,522	259	113	226	20	46	59
Genetics, plant and animal	257	249	179	41	6	17	0	6	8
Zoology	3,549	3,494	2,896	361	62	95	21	59	55
Biological sciences, other	4,526	4,430	3,395	519	139	257	25	95	96
Agricultural sciences	16,388	16,118	14,399	307	341	504	139	428	270
Psychology	73,828	72,812	55,905	3,666	6,028	5,036	470	1,707	1,016
Social sciences, total	111,789	107,881	79,136	6,756	10,747	7,372	734	3,136	3,908
Economics	17,896	16,109	11,640	1,994	1,020	841	67	547	1,787
Political science	39,928	38,798	28,933	2,009	3,811	2,841	228	976	1,130
Sociology	24,169	23,845	16,777	1,090	3,560	1,685	186	547	324
Other social sciences	29,796	29,129	21,786	1,663	2,356	2,005	253	1,066	667
Non-S&E [3]	795,141	772,101	607,342	32,698	61,157	48,129	4,664	18,111	23,040

See explanatory information and SOURCE at end of table.

Appendix table 2-10. Bachelor's degrees, by detailed field and race/ethnicity of recipient: 1996

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[1] Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

[2] Nonresident aliens include foreign citizens on temporary visas only.

[3] Non-S&E refers to non-science and non-engineering.

NOTE: Racial/ethnic data were collected by broad fields of study only until 1994; therefore, data could not be adjusted to the exact field taxonomies used by NSF. Because data were collected by detailed field in 1996 (as well as in 1995) the data in this table do correspond to the field taxonomies used by NSF and therefore will match other tables in this report showing master's degrees by sex, but will not match data shown in other tables in this report showing master's degrees by race/ethnicity over time. The largest effect is in the social sciences: NSF excludes history and includes public administration and public policy, linguistics, gerontology, and agricultural economics in this category.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-11. Bachelor's degrees awarded to blacks by Historically Black Colleges and Universities (HBCUs): 1990–96

Academic discipline	1990	1991	1992	1993	1994	1995	1996
Degrees awarded to blacks, all institutions							
Total science and engineering	18,230	19,987	22,431	24,421	26,289	27,528	29,055
Engineering	2,072	2,229	2,362	2,577	2,659	2,845	3,000
Science, total	16,158	17,758	20,069	21,844	23,630	24,683	26,055
Physical sciences [1]	650	753	816	836	921	1,034	1,100
Mathematics and statistics	720	811	904	965	992	995	981
Computer science	2,247	1,997	2,090	2,213	2,398	2,498	2,415
Agricultural sciences	171	162	206	219	268	263	363
Biological sciences	1,994	2,111	2,385	2,739	2,980	3,231	3,811
Psychology	3,150	3,688	4,179	4,618	5,236	5,741	6,028
Social sciences	7,226	8,236	9,489	10,254	10,835	10,921	11,357
Degrees to blacks from HBCUs							
Total science and engineering	5,190	5,679	6,363	7,368	7,804	8,361	8,980
Engineering	524	589	594	700	690	798	894
Science, total	4,666	5,090	5,769	6,668	7,114	7,563	8,086
Physical sciences [1]	296	358	376	390	421	471	547
Mathematics and statistics	307	369	420	463	449	466	443
Computer science	899	748	780	904	904	967	979
Agricultural sciences	87	96	117	109	134	123	197
Biological sciences	764	792	906	1,155	1,197	1,357	1,628
Psychology	662	841	969	1,140	1,308	1,432	1,512
Social sciences	1,651	1,886	2,201	2,507	2,701	2,747	2,780
Degrees to blacks from HBCUs as a percentage of total degrees awarded to blacks							
Total science and engineering	28.5	28.4	28.4	30.2	29.7	30.4	30.9
Engineering	25.3	26.4	25.1	27.2	25.9	28.0	29.8
Science, total	28.9	28.7	28.7	30.5	30.1	30.6	31.0
Physical sciences [1]	45.5	47.5	46.1	46.7	45.7	45.6	49.7
Mathematics and statistics	42.6	45.5	46.5	48.0	45.3	46.8	45.2
Computer science	40.0	37.5	37.3	40.8	37.7	38.7	40.5
Agricultural sciences	50.9	59.3	56.8	49.8	50.0	46.8	54.3
Biological sciences	38.3	37.5	38.0	42.2	40.2	42.0	42.7
Psychology	21.0	22.8	23.2	24.7	25.0	24.9	25.1
Social sciences	22.8	22.9	23.2	24.4	24.9	25.2	24.5

[1] In all tables showing degrees before 1995 by race/ethnicity, "Physical science" for all years includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry. See NOTE.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by the National Science Foundation/Division of Science Resources Studies, data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-12. Top 25 institutions awarding science and engineering bachelor's degrees to black men, by broad field: 1996

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	Total, science and engineering		Science		Engineering	
Rank	Academic institution	Number of degrees	Academic institution	Number of degrees	Academic institution	Number of degrees
	Total of all academic institutions	11,700	Total of all academic institutions	9,736	Total of all academic institutions	1,964
1	Morehouse College *	244	Morehouse College *	218	North Carolina Agricultural & Tech State Univ *	134
2	North Carolina Agricultural & Tech State Univ *	210	Hampton University *	115	Tuskegee University *	75
3	Florida Agricultural and Mechanical University *	173	Florida Agricultural and Mechanical University *	112	Georgia Institute of Technology, Main Campus	66
4	Southern University A&M Col at Baton Rouge *	154	Southern University A&M Col at Baton Rouge *	102	Prairie View A&M University *	64
5	Tuskegee University *	150	Howard University *	93	Florida Agricultural and Mechanical University *	61
6	CUNY City College	144	Xavier University of Louisiana *	91	CUNY City College	59
7	Howard University *	135	North Carolina Central University *	89	Southern University A&M Col at Baton Rouge *	52
8	Morgan State University *	126	Norfolk State University *	86	Morgan State University *	43
9	Hampton University *	121	University of Maryland at College Park	86	Howard University *	42
10	Prairie View A&M University *	117	CUNY City College	85	New Jersey Institute of Technology	38
11	University of Maryland at College Park	112	Grambling State University *	83	Clemson University	31
12	Xavier University of Louisiana *	91	Morgan State University *	83	North Carolina State University at Raleigh	28
13	Norfolk State University *	89	Jackson State University *	81	University of Maryland at College Park	26
14	North Carolina Central University *	89	North Carolina Agricultural & Tech State Univ *	76	Rensselaer Polytechnic Institute	26
15	Rutgers, the State Univ of NJ, New Brunswick	83	Tuskegee University *	75	Morehouse College *	26
16	Grambling State University *	83	South Carolina State University *	73	University of Michigan at Ann Arbor	23
17	Tennessee State University *	82	Rutgers, the State Univ of NJ, New Brunswick	70	United States Air Force Academy	23
18	Jackson State University *	81	Alabama Agricultural and Mechanical University *	67	Mississippi State University	23
19	University of California-Berkeley	74	Tennessee State University *	66	Auburn University, Main Campus	21
20	South Carolina State University *	73	University of California-Los Angeles	65	Purdue University, Main Campus	19
21	Georgia Institute of Technology, Main Campus	72	CUNY York College	63	Temple University	18
22	Alabama Agricultural and Mechanical University *	71	University of California-Berkeley	63	Rutgers, the State Univ of NJ, New Brunswick	18
23	University of California-Los Angeles	71	University of North Carolina at Chapel Hill	62	University of Florida	17
24	University of Michigan at Ann Arbor	65	Strayer College	60	Massachusetts Institute of Technology	17
25	CUNY York College	63	Fayetteville State University *	57	Florida International University	17
	University of Virginia, Main Campus	63				

See explanatory information and SOURCE at end of table.

Appendix table 2-12. Top 25 institutions awarding science and engineering bachelor's degrees to black women, by broad field: 1996

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	Total, science and engineering		Science		Engineering	
Rank	Academic institution	Number of degrees	Academic institution	Number of degrees	Academic institution	Number of degrees
	Total of all academic institutions	17,355	Total of all academic institutions	16,319	Total of all academic institutions	1,036
1	Spelman College *	322	Spelman College *	308	North Carolina Agricultural & Tech State Univ *	88
2	Howard University *	270	Howard University *	244	Georgia Institute of Technology, Main Campus	62
3	Xavier University of Louisiana *	231	Xavier University of Louisiana *	231	Tuskegee University *	50
4	Florida Agricultural and Mechanical University *	221	Hampton University *	191	Florida Agricultural and Mechanical University *	41
5	Hampton University *	200	Florida Agricultural and Mechanical University *	180	Prairie View A&M University *	31
6	North Carolina Agricultural & Tech State Univ *	196	Southern University A&M Col at Baton Rouge *	170	Morgan State University *	30
7	Southern University A&M Col at Baton Rouge *	196	Grambling State University *	161	Howard University *	26
8	Morgan State University *	186	Morgan State University *	156	Southern University A&M Col at Baton Rouge *	26
9	Grambling State University *	161	North Carolina Central University *	152	Purdue University, Main Campus	23
10	North Carolina Central University *	152	Norfolk State University *	130	University of Michigan at Ann Arbor	21
11	Tuskegee University *	152	Jackson State University *	126	North Carolina State University at Raleigh	20
12	Norfolk State University *	131	Rutgers, the State Univ of NJ, New Brunswick	119	Tennessee State University *	19
13	Jackson State University *	126	CUNY Herbert H Lehman College	118	Mississippi State University	18
14	University of California-Los Angeles	124	University of California-Los Angeles	117	Auburn University, Main Campus	14
15	Tennessee State University *	123	University of North Carolina at Chapel Hill	116	Northwestern Univ	14
16	Rutgers, the State Univ of NJ, New Brunswick	121	Chicago State University	111	Spelman College *	14
17	CUNY Herbert H Lehman College	118	Clark Atlanta University *	111	University of South Florida	14
18	University of Maryland at College Park	117	University of Virginia, Main Campus	111	Texas A&M University Main Campus	13
19	University of North Carolina at Chapel Hill	116	North Carolina Agricultural & Tech State Univ *	108	University of Maryland at College Park	12
20	University of Virginia, Main Campus	116	University of South Carolina at Columbia	107	Clemson University	11
21	University of South Carolina at Columbia	113	University of Maryland at College Park	105	New Jersey Institute of Technology	11
22	Chicago State University	111	Tennessee State University *	104	University of Alabama	11
23	Clark Atlanta University *	111	CUNY York College	103	University of Missouri, Rolla	11
24	Prairie View A&M University *	109	Tuskegee University *	102	University of Tennessee at Knoxville	11
25	University of Michigan at Ann Arbor	105	CUNY Hunter College	101	Hampton University *	9
					Louisiana State Univ & Agric & Mechanical Col *	9
					Texas Southern University *	9
					University of Southern California	9

* Denotes Historically Black College or University

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey

Appendix table 2-13. Top 50 institutions awarding science and engineering bachelor's degrees to Hispanics, by institution: 1996

Rank	Academic institution	Number of degrees
	Total of all academic institutions	23,791
1	University of PR, Mayaguez Campus*	1,080
2	Florida International University*	600
3	University of California-Los Angeles	576
4	University of PR, Rio Piedras Campus*	541
5	University of Texas at Austin	410
6	University of California-Berkeley	379
7	Texas A&M University, Main Campus	300
8	University of Texas at San Antonio	297
9	University of Texas-Pan American	295
10	Universidad Politecnica de Puerto Rico*	288
11	University of Texas at El Paso	282
12	Inter American U of PR, Metropolitan Campus*	259
13	Inter American U of PR, San German Campus*	258
14	University of California-San Diego	255
15	University of California-Santa Barbara	251
16	The Pontifical Catholic Univ. of Puerto Rico*	248
17	University of Arizona	235
18	University of California-Davis	233
19	San Diego State University	219
20	California State University-Los Angeles*	211
21	CUNY Hunter College	201
22	California State Polytechnic U-San Luis Obispo	198
23	University of California-Irvine	198
24	University of New Mexico, All Campuses*	197
25	CUNY Herbert H Lehman College*	196
26	California State University-Northridge	195
27	University of Florida	192
28	California State University-Long Beach	188
29	New Mexico State University, All Campuses*	180
30	Texas A&M University-Kingsville	173
31	Rutgers, the State Univ of NJ, New Brunswick	167
32	University of Miami*	166
33	University of PR, Cayey University College*	165
34	California State University-Fresno*	162
35	University of South Florida	154
36	University of Southern California	154
37	University of California-Santa Cruz	153
38	Arizona State University, Main Campus	145
39	San Jose State University	144
40	University of Houston	141
41	California State University-Fullerton	139
42	Inter American U of PR, Arecibo Campus*	136
43	California State Polytechnic University, Pomona	135
44	University of Illinois at Urbana-Champaign	132
45	University of Central Florida	130
46	CUNY City College*	126
47	Stanford University	122
48	University of Michigan at Ann Arbor	121
49	University of Washington-Seattle	117
50	Florida State University	114

* Denotes Hispanic Serving Institution

SOURCE: Tabulations by the National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-14. Science and engineering bachelor's degrees awarded to Hispanics by institutions in Puerto Rico, by field: 1990–96

Field	1990	1991	1992	1993	1994	1995	1996
Degrees awarded, all institutions							
Total science and engineering	13,918	15,351	17,391	18,422	20,529	22,190	23,791
Engineering	2,511	2,566	2,733	2,961	3,143	3,651	3,731
Physical sciences[1]	522	533	546	599	733	800	872
Math and computer sciences	1,498	1,695	1,655	1,566	1,678	1,843	1,865
Agricultural sciences	218	213	214	217	336	386	506
Biological sciences	2,119	2,264	2,477	2,652	2,901	3,090	3,521
Psychology	2,405	2,746	3,247	3,587	3,990	4,543	5,036
Social sciences	4,645	5,334	6,519	6,860	7,748	7,877	8,260
Degrees to Hispanics from institutions in Puerto Rico as a percentage of total degrees awarded to Hispanics							
Total science and engineering	21.4	19.2	17.3	16.3	15.6	15.8	15.2
Engineering	24.9	21.6	25.1	23.5	23.6	27.1	24.5
Physical sciences[1]	35.2	28.9	31.5	28.7	31.0	38.9	37.2
Math and computer sciences	22.0	25.7	19.9	18.8	17.0	15.4	16.2
Agricultural sciences	32.6	28.2	0.0	0.0	16.1	13.5	13.4
Biological sciences	40.7	35.2	33.8	31.4	27.9	26.3	27.4
Psychology	17.3	15.6	15.0	13.8	12.5	11.0	10.0
Social sciences	10.7	9.8	7.6	7.4	7.6	7.0	6.6

[1] In all tables showing degrees before 1995 by race/ethnicity, "Physical science" for all years includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry. See NOTE.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-15. Top 15 states in which American Indians/Alaskan Natives earned science and engineering bachelor's and associate's degrees: 1990–96

Rank 1996	State	1990	1991	1992	1993	1994	1995	1996
	Bachelor's Degrees							
	Total, United States	1,271	1,344	1,561	1,818	2,004	2,126	2,268
1	California	264	269	317	391	416	412	430
2	Oklahoma	113	119	149	179	227	236	246
3	Colorado	37	52	49	71	80	87	112
4	North Carolina	55	72	79	93	87	84	99
5	Texas	47	66	55	64	81	96	96
6	Washington	49	54	64	81	81	79	95
7	Arizona	45	35	52	61	48	83	87
8	New York	43	66	78	77	73	99	87
9	Michigan	46	53	55	68	59	75	85
10	Oregon	33	37	41	46	59	52	60
11	New Mexico	36	36	34	28	55	50	55
12	Florida	14	19	18	26	38	35	49
13	Montana	22	20	24	20	25	35	47
14	Minnesota	30	41	43	37	45	42	39
15	Wisconsin	24	32	30	53	51	45	39
	Associate's Degrees							
	Total, United States	202	257	246	310	417	410	464
1	Oklahoma	34	51	52	68	103	85	95
2	California	46	47	53	59	56	73	80
3	Arizona	22	27	34	57	66	50	62
4	Montana	17	12	18	18	24	19	41
5	South Dakota	14	16	4	8	25	26	32
6	Kansas	8	15	13	15	19	24	18
7	New Mexico	10	14	7	8	20	18	16
8	New York	5	7	6	8	8	3	13
9	Wyoming	1	0	2	0	3	2	13
10	Michigan	6	8	6	9	20	18	12
11	Texas	1	4	6	7	10	18	12
12	Nebraska	0	0	0	1	3	3	8
13	Ohio	2	3	3	8	6	6	6
14	Virginia	0	2	1	1	2	2	6
15	Utah	0	1	2	5	0	3	5

SOURCE: Tabulations by the National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 2-16. Bachelor's degrees awarded to American Indians/Alaskan Natives by Tribal Institutions: 1990–96

Academic discipline	1990	1991	1992	1993	1994	1995	1996
Bachelor's degrees all academic institutions:							
Total science and engineering	1,271	1,344	1,561	1,819	2,004	2,126	2,268
Engineering	146	158	182	176	218	221	243
Physical sciences[1]	73	69	63	93	83	98	104
Math and computer science	129	123	125	136	137	168	142
Agricultural sciences	59	53	60	64	109	124	139
Biological sciences	130	176	181	211	246	285	316
Psychology	211	235	311	335	394	407	470
Social sciences	523	530	639	804	817	823	854
Bachelor's degrees, Tribal Institutions:							
Total science and engineering	5	5	0	0	7	7	14
Agricultural sciences	0	0	0	0	0	0	2
Social sciences	5	5	0	0	7	7	12

[1] In all tables showing degrees before 1995 by race/ethnicity, "Physical science" for all years includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry. See NOTE.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 2-17. Associate's degrees awarded to American Indians/Alaskan Natives by Tribal Institutions: 1990–96

Academic discipline	1990	1991	1992	1993	1994	1995	1996
Associate's degrees, all academic institutions:							
Total science and engineering	434	551	451	568	735	727	781
Engineering	12	21	14	8	18	21	11
Physical sciences[1]	4	7	5	7	20	23	26
Math and computer science	84	91	69	116	116	124	136
Agricultural sciences	21	37	38	41	69	60	48
Biological sciences	13	22	15	25	36	40	42
Psychology	9	16	31	18	38	35	42
Social sciences	59	63	75	100	122	107	159
Science and engineering technologies	170	242	178	214	269	272	245
Interdisciplinary or other sciences	62	52	26	39	47	45	72
Associate's degrees, Tribal Institutions:							
Total science and engineering	58	67	66	93	134	135	171
Engineering	0	0	2	0	0	0	0
Physical sciences[1]	1	0	0	0	0	0	4
Math and computer science	29	29	13	25	20	29	42
Agricultural sciences	1	4	14	15	25	24	19
Biological sciences	2	2	4	4	8	7	4
Psychology	0	0	0	0	4	3	2
Social sciences	24	26	29	45	67	61	83
Science and engineering technologies	1	6	0	0	2	2	3
Interdisciplinary or other sciences	0	0	4	4	8	9	14

[1] In all tables showing degrees before 1995 by race/ethnicity, "Physical science" for all years includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry. See NOTE.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 3-1. Science and engineering graduate students, by field: 1980–97

Field	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Science and engineering, total	325,649	332,041	338,916	347,017	349,698	358,059	368,104	373,341	375,277	382,747	397,135	412,697	430,644	435,886	431,251	422,525	415,363	407,644
Physical sciences	26,934	27,357	28,186	29,453	30,056	30,981	32,246	32,727	32,962	33,616	34,075	34,710	35,348	35,318	34,449	33,417	32,355	31,108
Astronomy	628	597	632	618	639	671	689	719	731	789	810	829	869	880	973	912	874	778
Chemistry	16,221	16,348	17,015	17,802	17,755	18,305	18,744	18,827	18,579	18,828	19,118	19,407	19,929	20,131	19,797	19,594	19,358	18,794
Physics	9,898	10,141	10,300	10,806	11,331	11,672	12,437	12,807	13,308	13,657	13,813	14,081	14,122	13,841	13,162	12,425	11,728	11,147
Other physical sciences	187	271	239	227	331	333	376	374	344	342	334	393	428	466	517	486	395	389
Earth, atmospheric, and ocean sciences	14,051	14,266	15,020	15,453	15,505	15,420	15,066	14,371	13,867	13,643	13,984	14,480	15,347	15,805	16,042	15,805	15,280	14,644
Mathematics and statistics	15,311	15,881	17,157	17,358	17,443	17,563	17,949	18,508	19,077	19,247	19,774	19,952	20,355	20,000	19,579	18,509	18,015	16,759
Computer science	13,578	16,437	19,812	23,333	25,526	29,769	31,349	32,051	32,227	32,482	34,257	34,610	36,293	36,189	34,128	33,432	34,592	36,010
Agricultural sciences	12,452	12,355	12,583	12,429	12,226	11,561	11,458	11,118	11,135	11,190	11,316	11,506	11,827	11,914	12,199	12,367	11,914	11,810
Biological sciences	47,596	46,639	45,970	45,644	45,763	46,112	46,764	46,747	47,565	48,852	49,989	51,778	54,177	56,452	58,143	58,706	58,128	57,135
Psychology	40,610	40,666	40,073	40,905	40,931	40,721	41,241	42,612	43,963	45,528	48,167	51,343	53,484	54,557	54,554	53,641	53,209	53,142
Social sciences	80,805	78,885	76,428	71,323	69,536	69,941	70,157	71,254	71,652	74,146	77,948	80,742	85,778	88,793	89,134	89,449	88,647	86,028
Economics	15,401	15,507	15,896	15,224	14,786	14,698	14,351	14,201	14,295	14,415	14,599	15,071	15,774	15,629	15,202	15,011	14,197	13,112
Political science and public administration	30,375	30,026	29,232	27,417	25,570	26,621	27,091	27,429	27,723	29,194	30,582	31,707	33,797	35,076	34,317	34,298	33,252	32,039
Sociology	9,228	8,947	8,412	8,149	7,836	7,620	7,553	7,968	8,077	8,393	8,965	9,292	9,990	10,360	10,485	10,505	18,150	18,198
Anthropology	6,322	6,118	5,948	5,644	5,590	5,631	5,805	5,835	5,945	6,128	6,479	6,731	7,123	7,361	7,665	7,693	7,773	7,558
Linguistics	3,007	3,139	2,803	3,022	3,160	3,055	3,109	3,282	3,243	3,286	3,404	3,425	3,277	3,321	3,279	3,194	3,156	3,008
Other social sciences	16,472	15,148	14,137	11,867	12,594	12,316	12,248	12,539	12,369	12,730	13,919	14,516	15,817	17,046	18,186	18,748	32,715	33,444
Engineering	74,312	79,555	83,687	91,119	92,712	95,991	101,874	103,953	102,829	104,043	107,625	113,576	118,035	116,858	113,023	107,199	103,223	101,008
Aerospace engineering	1,737	1,883	1,941	2,305	2,340	2,538	2,804	3,015	3,223	3,524	3,934	4,120	4,036	3,940	3,715	3,343	3,208	3,083
Chemical engineering	6,015	6,496	7,189	7,563	7,373	7,150	7,012	7,111	6,618	6,460	6,735	7,127	7,397	7,516	7,608	7,424	7,373	7,247
Civil engineering	13,097	14,089	14,122	14,910	15,192	14,902	14,976	14,682	14,811	14,909	15,542	17,398	19,572	19,583	19,925	19,218	18,528	17,033
Electrical engineering	19,132	20,113	21,927	25,295	26,388	28,203	29,969	31,399	32,035	33,257	33,722	35,182	36,460	35,314	33,050	30,747	29,736	30,617
Mechanical engineering	9,888	10,618	11,467	12,911	13,855	14,157	15,713	16,366	16,151	16,265	16,879	17,730	18,637	18,477	17,761	16,363	15,509	15,044
Materials engineering	2,910	3,125	3,124	3,447	3,657	3,943	4,208	4,366	4,337	4,594	4,941	5,160	5,512	5,363	5,191	4,920	4,713	4,649
Industrial engineering	9,698	9,737	9,577	9,247	9,282	10,499	11,529	12,220	11,393	11,094	11,248	12,676	13,525	13,596	13,661	13,143	12,399	11,725
Other engineering	11,835	13,494	14,340	15,441	14,625	14,599	15,663	14,794	14,261	13,940	14,624	14,183	12,896	13,069	12,112	12,041	11,757	11,610

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-2. Female science and engineering graduate students, by field: 1980–97

Field	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Science and engineering, total	94,396	99,848	103,576	106,519	107,546	110,638	114,418	117,192	121,272	125,898	133,741	140,852	150,247	156,597	159,131	160,198	161,734	162,029
Physical sciences	4,596	5,009	5,419	5,877	6,158	6,507	6,862	7,114	7,497	7,801	8,068	8,564	8,844	9,202	9,159	9,090	9,052	8,851
Astronomy	82	91	101	92	98	108	121	118	140	140	165	172	186	198	223	223	227	208
Chemistry	3,503	3,803	4,158	4,512	4,639	4,789	5,026	5,178	5,467	5,670	5,868	6,262	6,562	6,852	6,841	6,835	6,847	6,728
Physics	948	1,016	1,067	1,201	1,291	1,497	1,576	1,673	1,751	1,868	1,913	1,980	1,943	1,976	1,908	1,835	1,809	1,744
Other physical sciences	63	99	93	72	130	113	139	145	139	123	122	150	153	176	187	197	169	171
Earth, atmospheric, and ocean sciences	3,207	3,418	3,723	3,901	3,873	3,927	3,947	3,779	3,805	3,858	4,119	4,455	4,858	5,060	5,353	5,469	5,494	5,457
Mathematics and statistics	4,064	4,481	5,078	5,200	5,168	5,354	5,479	5,596	5,776	5,985	6,199	6,298	6,549	6,638	6,535	6,261	6,221	5,884
Computer science	3,087	4,209	5,446	6,614	6,873	7,561	7,852	8,015	8,194	7,988	8,199	8,270	8,455	8,422	8,085	8,126	8,790	9,877
Agricultural sciences	2,858	2,822	3,085	3,139	3,138	2,991	2,953	2,952	3,097	3,145	3,335	3,567	3,768	4,088	4,288	4,432	4,412	4,533
Biological sciences	18,301	18,647	19,173	19,351	19,517	19,904	20,471	20,433	21,261	22,234	23,042	24,135	25,475	27,053	28,155	28,830	28,768	28,622
Psychology	21,583	22,766	23,097	24,257	24,751	25,124	25,864	26,929	28,461	29,855	32,345	34,787	36,834	37,990	38,138	37,764	37,806	37,643
Social sciences	30,361	30,750	29,780	28,373	27,771	28,190	28,625	29,411	30,057	31,432	33,762	35,061	38,231	40,452	41,369	42,212	42,939	42,447
Economics	3,457	3,645	3,925	3,621	3,508	3,564	3,509	3,518	3,645	3,824	3,973	4,195	4,514	4,606	4,541	4,659	4,493	4,194
Political science and public administration	10,680	11,190	10,953	10,493	9,581	10,345	10,677	10,866	11,393	12,170	13,157	13,736	14,971	15,756	15,584	15,950	15,632	15,384
Sociology	4,594	4,615	4,473	4,299	4,188	4,037	4,099	4,352	4,387	4,565	4,960	5,101	5,684	6,080	6,331	6,337	6,326	6,402
Anthropology	3,313	3,327	3,271	3,206	3,151	3,121	3,345	3,353	3,446	3,580	3,791	3,953	4,247	4,392	4,593	4,553	4,686	4,500
Linguistics	1,682	1,790	1,623	1,805	1,901	1,857	1,857	1,977	1,947	1,952	2,006	1,913	1,996	2,020	2,066	2,000	2,023	1,974
Other social sciences	6,635	6,183	5,535	4,949	5,442	5,266	5,138	5,345	5,239	5,341	5,875	6,163	6,819	7,598	8,254	8,713	9,779	9,993
Engineering	6,339	7,746	8,775	9,807	10,297	11,080	12,365	12,963	13,124	13,600	14,672	15,715	17,233	17,692	18,049	18,014	18,252	18,715
Aerospace engineering	74	67	110	123	132	163	200	224	227	243	289	327	348	357	358	351	352	371
Chemical engineering	679	778	901	1,016	972	1,004	1,039	1,154	1,075	1,029	1,146	1,257	1,394	1,499	1,526	1,561	1,642	1,709
Civil engineering	1,365	1,574	1,749	1,859	2,027	2,147	2,147	2,103	2,294	2,435	2,689	3,102	3,654	3,858	4,211	4,232	4,300	4,159
Electrical engineering	983	1,276	1,551	2,068	2,213	2,435	2,908	3,098	3,278	3,515	3,715	3,871	4,293	4,322	4,104	4,095	4,129	4,459
Mechanical engineering	534	631	719	805	956	1,011	1,159	1,296	1,402	1,398	1,442	1,511	1,698	1,774	1,823	1,677	1,636	1,779
Materials engineering	303	390	420	448	468	603	675	729	756	810	893	987	1,069	1,027	1,069	1,059	1,060	1,094
Industrial engineering	1,355	1,543	1,619	1,518	1,608	1,780	2,095	2,244	2,093	2,110	2,137	2,355	2,655	2,593	2,795	2,755	2,714	2,610
Other engineering	1,046	1,487	1,706	1,970	1,921	1,937	2,142	2,115	1,999	2,060	2,361	2,305	2,122	2,262	2,163	2,284	2,419	2,534

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-3. Male science and engineering graduate students, by field: 1980–97

Field	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Science and engineering, total	231,253	232,193	235,340	240,498	242,152	247,421	253,686	256,149	254,005	256,849	263,394	271,845	280,397	279,289	272,120	262,341	253,629	245,615
Physical sciences	22,338	22,348	22,767	23,576	23,898	24,474	25,384	25,613	25,465	25,815	26,007	26,146	26,504	26,116	25,290	24,327	23,303	22,257
Astronomy	546	506	531	526	541	563	568	601	591	649	645	657	683	682	750	689	647	570
Chemistry	12,718	12,545	12,857	13,290	13,116	13,516	13,718	13,649	13,112	13,158	13,250	13,145	13,367	13,279	12,956	12,759	12,511	12,066
Physics	8,950	9,125	9,233	9,605	10,040	10,175	10,861	11,134	11,557	11,789	11,900	12,101	12,179	11,865	11,254	10,590	9,919	9,403
Other physical sciences	124	172	146	155	201	220	237	229	205	219	212	243	275	290	330	289	226	218
Earth, atmospheric, and ocean sciences	10,844	10,848	11,297	11,552	11,632	11,493	11,119	10,592	10,062	9,785	9,865	10,025	10,489	10,745	10,689	10,336	9,786	9,187
Mathematics and statistics	11,247	11,400	12,079	12,158	12,275	12,209	12,470	12,912	13,301	13,262	13,575	13,654	13,806	13,362	13,044	12,248	11,794	10,875
Computer science	10,491	12,228	14,366	16,719	18,653	22,208	23,497	24,036	24,033	24,494	26,058	26,340	27,838	27,767	26,043	25,306	25,802	26,133
Agricultural sciences	9,594	9,533	9,498	9,290	9,088	8,570	8,505	8,166	8,038	8,045	7,981	7,939	8,059	7,826	7,911	7,935	7,502	7,277
Biological sciences	29,295	27,992	26,797	26,293	26,246	26,208	26,293	26,314	26,304	26,618	26,947	27,643	28,702	29,399	29,988	29,890	29,360	28,513
Psychology	19,027	17,900	16,976	16,648	16,180	15,597	15,377	15,683	15,502	15,673	15,822	16,555	16,650	16,567	16,416	15,877	15,403	15,499
Social sciences	50,444	48,135	46,648	42,950	41,765	41,751	41,532	41,843	41,595	42,714	44,186	45,681	47,547	48,341	47,765	47,237	45,708	43,581
Economics	11,944	11,862	11,971	11,603	11,278	11,134	10,842	10,683	10,650	10,591	10,626	10,876	11,260	11,023	10,661	10,352	9,704	8,918
Political science and public administration	19,695	18,836	18,279	16,924	15,989	16,276	16,414	16,563	16,330	17,024	17,425	17,971	18,826	19,320	18,733	18,348	17,620	16,655
Sociology	4,634	4,332	3,939	3,850	3,648	3,583	3,454	3,616	3,690	3,828	4,005	4,191	4,306	4,280	4,154	4,168	4,022	3,969
Anthropology	3,009	2,791	2,677	2,438	2,439	2,510	2,460	2,482	2,499	2,548	2,688	2,778	2,876	2,969	3,072	3,140	3,087	3,058
Linguistics	1,325	1,349	1,180	1,217	1,259	1,198	1,252	1,305	1,296	1,334	1,398	1,512	1,281	1,301	1,213	1,194	1,133	1,034
Other social sciences	9,837	8,965	8,602	6,918	7,152	7,050	7,110	7,194	7,130	7,389	8,044	8,353	8,998	9,448	9,932	10,035	10,142	9,947
Engineering	67,973	71,809	74,912	81,312	82,415	84,911	89,509	90,990	89,705	90,443	92,953	97,861	100,802	99,166	94,974	89,185	84,971	82,293
Aerospace engineering	1,663	1,816	1,831	2,182	2,208	2,375	2,604	2,791	2,996	3,281	3,645	3,793	3,688	3,583	3,357	2,992	2,856	2,712
Chemical engineering	5,336	5,718	6,288	6,547	6,401	6,146	5,973	5,957	5,543	5,431	5,589	5,870	6,003	6,017	6,082	5,863	5,731	5,538
Civil engineering	11,732	12,515	12,373	13,051	13,165	12,755	12,829	12,579	12,517	12,474	12,853	14,296	15,918	15,725	15,714	14,986	14,228	12,874
Electrical engineering	18,149	18,837	20,376	23,227	24,175	25,768	27,061	28,301	28,757	29,742	30,007	31,311	32,167	30,992	28,946	26,652	25,607	26,158
Mechanical engineering	9,354	9,987	10,748	12,106	12,899	13,146	14,554	15,070	14,749	14,867	15,437	16,219	16,939	16,703	15,938	14,686	13,873	13,265
Materials engineering	2,607	2,735	2,704	2,999	3,189	3,340	3,533	3,637	3,581	3,784	4,048	4,173	4,443	4,336	4,122	3,861	3,653	3,555
Industrial engineering	8,343	8,194	7,958	7,729	7,674	8,719	9,434	9,976	9,300	8,984	9,111	10,321	10,870	11,003	10,866	10,388	9,685	9,115
Other engineering	10,789	12,007	12,634	13,471	12,704	12,662	13,521	12,679	12,262	11,880	12,263	11,878	10,774	10,807	9,949	9,757	9,338	29,189

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-4. Full-time science and engineering graduate students enrolled for the first time, by field and sex: 1980–97

Field	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Total																		
Science and engineering, total	69,945	69,153	70,007	71,969	70,409	71,075	73,053	71,178	70,886	74,389	76,575	81,458	83,134	79,313	78,056	74,384	73,479	73,513
Sciences, total	54,002	52,491	51,821	52,892	51,404	52,811	52,711	51,743	51,624	54,563	56,492	58,914	60,890	58,975	58,287	56,310	55,472	54,694
Physical sciences	5,973	6,090	6,184	6,704	6,513	6,645	6,935	6,778	6,528	6,852	6,809	7,107	6,910	6,690	6,454	6,131	6,019	6,035
Earth, atmospheric, and ocean sciences	3,617	3,402	3,597	3,738	3,350	3,220	3,071	2,566	2,576	2,637	2,694	2,909	3,018	2,987	3,012	2,805	2,640	2,693
Mathematical sciences	3,460	3,435	3,685	3,598	3,734	3,975	4,023	3,914	3,931	4,229	4,269	4,350	4,443	4,044	3,963	3,578	3,450	3,302
Computer sciences	2,552	2,923	3,330	3,892	4,023	4,703	4,969	5,092	4,995	5,487	5,378	5,558	5,477	4,741	4,754	4,782	4,908	4,990
Agricultural sciences	3,108	2,958	2,962	2,817	2,697	2,461	2,374	2,203	2,199	2,359	2,413	2,434	2,219	2,301	2,301	2,240	2,122	2,103
Biological sciences	10,308	9,855	9,547	9,802	9,765	9,804	9,728	9,740	9,714	9,969	10,220	10,676	10,890	11,114	11,376	11,417	10,832	11,113
Psychology	8,399	8,076	7,530	7,766	7,519	7,597	7,612	7,859	8,145	8,516	8,925	9,457	10,172	9,686	9,530	9,241	9,152	8,790
Social sciences	16,585	15,752	14,986	14,575	13,803	14,406	13,999	13,591	13,536	14,514	15,784	16,423	17,761	17,412	16,897	16,116	16,349	15,668
Engineering	15,943	16,662	18,186	19,077	19,005	18,264	20,342	19,435	19,262	19,826	20,083	22,544	22,244	20,338	19,769	18,074	18,007	18,819
Women																		
Sciences, total	21,221	22,319	22,260	22,847	22,287	23,211	23,673	23,398	24,033	25,500	27,071	28,789	30,438	30,178	29,812	29,233	29,744	29,963
Physical sciences	19,518	20,314	20,046	20,539	19,978	20,846	21,002	20,765	21,282	22,653	24,072	25,409	26,858	26,668	26,315	25,844	26,179	26,169
Earth, atmospheric,	1,195	1,278	1,440	1,560	1,489	1,546	1,655	1,634	1,716	1,807	1,803	1,913	1,907	1,888	1,855	1,776	1,832	1,887
and ocean sciences	908	912	983	1,008	895	898	839	737	787	833	832	992	1,047	1,041	1,112	1,093	1,035	1,079
Mathematical sciences	949	1,023	1,110	1,142	1,115	1,251	1,254	1,281	1,286	1,456	1,430	1,509	1,493	1,382	1,373	1,241	1,243	1,223
Computer sciences	646	786	884	1,013	1,064	1,136	1,149	1,189	1,224	1,239	1,179	1,258	1,187	1,074	1,075	1,152	1,218	1,275
Agricultural sciences	904	816	864	839	807	705	713	691	703	758	819	869	797	947	888	895	842	904
Biological sciences	4,237	4,257	4,313	4,381	4,368	4,505	4,612	4,568	4,608	4,792	5,008	5,201	5,401	5,590	5,650	5,684	5,508	5,766
Psychology	4,518	4,821	4,613	4,778	4,689	4,843	4,951	5,059	5,420	5,686	6,094	6,527	6,973	6,772	6,536	6,390	6,417	6,227
Social sciences	6,161	6,421	5,839	5,818	5,551	5,962	5,829	5,606	5,538	6,082	6,907	7,140	8,053	7,974	7,826	7,613	8,084	7,808
Engineering	1,703	2,005	2,214	2,308	2,309	2,365	2,671	2,633	2,751	2,847	2,999	3,380	3,580	3,510	3,497	3,389	3,565	3,794
Men																		
Sciences, total	48,724	46,834	47,747	49,122	48,122	47,864	49,380	47,780	46,853	48,889	49,504	52,669	52,696	49,135	48,244	45,151	43,735	43,550
Physical sciences	34,484	32,177	31,775	32,353	31,426	31,965	31,709	30,978	30,342	31,910	32,420	33,505	34,032	32,307	31,972	30,466	29,293	28,525
Earth, atmospheric,	4,778	4,812	4,744	5,144	5,024	5,099	5,280	5,144	4,812	5,045	5,006	5,194	5,003	4,802	4,599	4,355	4,187	4,148
and ocean sciences	2,709	2,490	2,614	2,730	2,455	2,322	2,232	1,829	1,789	1,804	1,862	1,917	1,971	1,946	1,900	1,712	1,605	1,614
Mathematical sciences	2,511	2,412	2,575	2,456	2,619	2,724	2,769	2,633	2,645	2,773	2,839	2,841	2,950	2,662	2,590	2,337	2,207	2,079
Computer sciences	1,906	2,137	2,446	2,879	2,959	3,567	3,820	3,903	3,771	4,248	4,199	4,300	4,290	3,667	3,679	3,630	3,690	3,715
Agricultural sciences	2,204	2,142	2,098	1,978	1,890	1,756	1,661	1,512	1,496	1,601	1,594	1,565	1,422	1,354	1,413	1,345	1,280	1,199
Biological sciences	6,071	5,598	5,234	5,421	5,397	5,299	5,116	5,172	5,106	5,177	5,212	5,475	5,489	5,524	5,726	5,733	5,324	5,347
Psychology	3,881	3,255	2,917	2,988	2,830	2,754	2,661	2,800	2,725	2,830	2,831	2,930	3,199	2,914	2,994	2,851	2,735	2,563
Social sciences	10,424	9,331	9,147	8,757	8,252	8,444	8,170	7,985	7,998	8,432	8,877	9,283	9,708	9,438	9,071	8,503	8,265	7,860
Engineering	14,240	14,657	15,972	16,769	16,696	15,899	17,671	16,802	16,511	16,979	17,084	19,164	18,664	16,828	16,272	14,685	14,442	15,025

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-5. Science and engineering graduate students, by field, citizenship, and race/ethnicity: 1982–97

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Field	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Science and engineering																
Total	338,916	347,017	349,698	358,059	368,104	373,341	375,277	382,747	397,135	412,697	430,644	435,886	431,251	422,555	415,363	407,644
Temporary residents	64,823	70,217	72,109	76,806	83,975	88,790	93,615	98,080	102,817	108,634	109,462	105,717	102,156	98,538	98,154	98,809
U.S. citizens and permanent residents	274,093	276,800	277,589	281,253	284,129	284,551	281,662	284,667	294,318	304,063	321,182	330,169	329,095	324,017	317,209	308,835
White, non-Hispanic	215,264	224,653	223,009	223,628	227,533	228,796	229,027	229,676	238,472	243,602	253,435	256,859	255,719	245,889	238,077	227,936
Asian/Pacific Islander	8,170	9,387	10,211	12,001	12,774	14,564	15,188	15,692	17,155	18,136	21,752	24,059	26,474	25,901	25,947	26,078
Black, non-Hispanic	10,388	10,941	10,679	10,451	10,460	10,426	11,191	11,775	12,774	13,691	15,445	17,118	17,611	18,283	19,071	19,363
Hispanic	7,724	8,812	8,683	8,614	8,658	8,823	9,098	9,436	10,159	11,045	12,246	13,381	13,281	14,117	14,638	14,988
American Indian/ Alaskan Native	909	911	830	737	743	782	918	860	1,054	1,120	1,243	1,309	1,383	1,516	1,539	1,599
Other or unknown race/ethnicity	31,638	22,096	24,177	25,822	23,961	21,160	16,240	17,228	14,704	16,469	17,061	17,443	14,627	18,311	17,937	18,871
Sciences																
Total	255,229	255,898	256,986	262,068	266,230	269,388	272,448	278,704	289,510	299,121	312,609	319,028	318,228	315,356	312,140	306,636
Temporary residents	39,765	42,724	44,206	47,984	52,030	55,413	58,389	61,383	64,618	67,291	68,022	66,450	65,172	63,071	63,125	62,387
U.S. citizens and permanent residents	215,464	213,174	212,780	214,084	214,200	213,975	214,059	217,321	224,892	231,830	244,587	252,578	253,056	252,285	249,015	244,249
White, non-Hispanic	172,017	176,050	173,758	173,487	174,607	174,995	176,698	178,183	185,265	188,818	196,039	199,419	199,699	193,933	188,965	181,919
Asian/Pacific Islander	5,427	5,981	6,399	7,196	7,660	8,715	9,278	9,681	10,468	11,020	13,260	15,072	16,697	16,893	17,510	17,924
Black, non-Hispanic	9,258	9,563	9,234	9,064	9,008	9,010	9,691	10,159	10,988	11,666	13,071	14,559	14,827	15,427	16,176	16,489
Hispanic	6,629	7,371	7,192	7,133	7,056	7,093	7,379	7,729	8,273	8,921	9,783	10,687	10,420	11,309	11,703	12,177
American Indian/ Alaskan Native	738	731	638	615	613	659	775	738	902	935	1,066	1,098	1,141	1,285	1,305	1,361
Other or unknown race/ethnicity	21,395	13,478	15,559	16,589	15,256	13,503	10,238	10,831	8,996	10,470	11,368	11,743	10,272	13,438	13,356	14,379
Physical sciences																
Total	28,186	29,453	30,056	30,981	32,246	32,727	32,962	33,616	34,075	34,710	35,348	35,318	34,449	33,417	32,355	31,108
Temporary residents	6,914	7,624	8,005	8,941	10,028	10,628	11,072	11,773	12,466	12,725	12,805	12,252	11,709	11,425	11,196	10,914
U.S. citizens and permanent residents	21,272	21,829	22,051	22,040	22,218	22,099	21,890	21,843	21,609	21,985	22,543	23,066	22,740	21,992	21,159	20,194
White, non-Hispanic	17,677	18,647	18,587	18,324	18,553	18,087	18,282	18,318	18,433	18,402	18,527	18,582	18,422	17,487	16,762	15,749
Asian/Pacific Islander	728	785	933	937	910	1,047	1,253	1,175	1,200	1,429	1,615	1,973	1,923	1,780	1,743	1,638
Black, non-Hispanic	553	575	596	535	524	536	569	633	654	699	807	843	856	897	986	952
Hispanic	496	563	535	599	629	591	624	680	642	649	680	747	675	732	743	784
American Indian/ Alaskan Native	49	45	77	35	48	46	52	44	63	62	67	81	67	76	60	70
Other or unknown race/ethnicity	1,769	1,214	1,323	1,610	1,554	1,792	1,110	993	617	744	847	840	797	1,020	865	1,001

See explanatory information and SOURCES at end of table.

Appendix table 3-5. Science and engineering graduate students, by field, citizenship, and race/ethnicity: 1982–97

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Field	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995[a]	1996	1997
Earth, atmospheric, and ocean sciences																
Total	15,020	15,453	15,505	15,420	15,066	14,371	13,867	13,643	13,984	14,480	15,347	15,805	16,042	15,805	15,280	14,644
Temporary residents	1,863	1,847	1,777	1,866	2,070	2,190	2,408	2,575	2,675	2,897	3,004	3,010	3,266	2,947	2,767	2,516
U.S. citizens and permanent residents	13,157	13,606	13,728	13,554	12,996	12,181	11,459	11,068	11,309	11,583	12,343	12,795	12,776	12,858	12,513	12,128
White, non-Hispanic	11,261	12,247	11,935	11,760	11,587	10,924	10,415	10,137	10,375	10,531	10,893	11,145	11,351	11,322	10,956	10,486
Asian/Pacific Islander	208	240	189	194	153	179	209	207	258	267	383	469	454	425	411	417
Black, non-Hispanic	103	114	115	127	98	93	107	95	123	141	202	227	203	219	223	206
Hispanic	191	224	261	238	237	227	210	209	241	250	308	371	344	366	381	407
American Indian/Alaskan Native	21	27	22	23	19	18	27	26	30	29	35	46	49	53	65	82
Other or unknown race/ethnicity	1,373	754	1,206	1,212	902	740	491	394	282	365	522	537	375	473	477	530
Mathematical sciences																
Total	17,157	17,358	17,443	17,563	17,949	18,508	19,077	19,247	19,774	19,952	20,355	20,000	19,579	18,509	18,015	16,759
Temporary residents	4,526	4,953	5,192	5,345	5,810	6,129	6,425	6,683	6,564	6,634	6,477	6,134	6,063	5,809	5,761	5,548
U.S. citizens and permanent residents	12,631	12,405	12,251	12,218	12,139	12,379	12,652	12,564	13,210	13,318	13,878	13,866	13,516	12,700	12,254	11,211
White, non-Hispanic	10,127	10,259	9,944	9,787	9,528	9,650	10,133	10,064	10,605	10,457	10,851	10,572	10,496	9,659	9,201	8,382
Asian/Pacific Islander	490	564	565	623	706	769	756	703	822	866	963	1,020	1,208	1,121	1,225	1,052
Black, non-Hispanic	356	403	393	409	449	441	422	463	511	524	579	710	673	689	711	657
Hispanic	290	330	292	262	270	266	328	305	351	349	376	415	369	400	425	426
American Indian/Alaskan Native	41	31	22	22	31	48	32	34	20	20	27	32	36	70	41	43
Other or unknown race/ethnicity	1,327	818	1,035	1,115	1,155	1,205	981	995	901	1,102	1,082	1,117	734	761	651	651
Computer sciences																
Total	19,812	23,333	25,526	29,769	31,349	32,051	32,227	32,482	34,257	34,610	36,293	36,189	34,128	33,432	34,592	36,010
Temporary residents	4,373	5,453	6,260	7,497	8,058	8,777	8,984	9,694	10,906	11,622	12,130	11,920	11,064	10,794	11,855	12,808
U.S. citizens and permanent residents	15,439	17,880	19,266	22,272	23,291	23,274	23,243	22,788	23,351	22,988	24,163	24,269	23,064	22,638	22,737	23,202
White, non-Hispanic	11,574	13,543	14,081	15,724	16,525	17,156	17,346	16,496	17,292	16,464	16,893	16,760	15,709	14,739	14,443	14,050
Asian/Pacific Islander	890	1,102	1,251	1,868	2,064	2,466	2,682	2,727	2,888	2,858	3,399	3,566	4,056	4,053	4,269	4,702
Black, non-Hispanic	528	568	567	622	702	769	839	848	985	1,093	1,108	1,168	1,182	1,155	1,278	1,303
Hispanic	249	285	293	488	453	551	516	542	565	631	706	696	633	664	701	726
American Indian/Alaskan Native	31	22	49	57	21	28	39	40	44	42	72	68	43	55	53	60
Other or unknown race/ethnicity	2,167	2,360	3,025	3,513	3,526	2,304	1,821	2,135	1,577	1,900	1,985	2,011	1,441	1,972	1,993	2,361

See explanatory information and SOURCES at end of table.

Appendix table 3-5. Science and engineering graduate students, by field, citizenship, and race/ethnicity: 1982–97

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Field	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Agricultural sciences																
Total	12,583	12,429	12,226	11,561	11,458	11,118	11,135	11,190	11,316	11,506	11,827	11,914	12,199	12,367	11,914	11,810
Temporary residents	2,678	2,756	2,705	2,656	2,793	2,914	2,929	2,939	3,183	3,208	3,178	3,136	3,139	3,097	2,948	2,725
U.S. citizens and permanent residents	9,905	9,673	9,521	8,905	8,665	8,204	8,206	8,251	8,133	8,298	8,649	8,778	9,060	9,270	8,966	9,085
White, non-Hispanic	8,689	8,745	8,703	7,881	7,785	7,435	7,315	7,294	7,251	7,481	7,679	7,731	7,972	7,978	7,732	7,745
Asian/Pacific Islander	143	142	147	138	135	169	217	236	242	225	215	264	276	274	281	302
Black, non-Hispanic	144	129	130	137	120	133	143	153	158	145	209	235	239	294	268	229
Hispanic	211	225	254	321	302	221	278	297	272	279	279	308	263	288	367	400
American Indian/Alaskan Native	26	34	26	22	24	29	33	25	20	31	39	34	37	59	49	62
Other or unknown race/ethnicity	692	398	261	406	299	217	220	246	190	137	228	206	273	377	269	347
Biological sciences																
Total	45,970	45,644	45,763	46,112	46,764	46,747	47,565	48,852	49,989	51,778	54,177	56,452	58,143	58,736	58,128	57,135
Temporary residents	5,543	6,005	6,308	6,867	7,798	8,678	9,689	10,772	11,519	12,496	12,819	12,927	12,829	12,208	11,490	11,166
U.S. citizens and permanent residents	40,427	39,639	39,455	39,245	38,966	38,069	37,876	38,080	38,470	39,282	41,358	43,525	45,314	46,528	46,638	45,969
White, non-Hispanic	34,598	34,704	34,817	34,002	33,778	32,643	32,725	32,361	32,677	33,058	34,229	35,094	36,389	36,509	36,327	35,041
Asian/Pacific Islander	1,116	1,251	1,302	1,446	1,564	1,650	1,799	1,986	2,228	2,346	2,822	3,456	3,953	4,299	4,464	4,478
Black, non-Hispanic	1,127	1,161	1,159	1,183	1,103	1,055	1,153	1,212	1,249	1,317	1,493	1,737	1,709	1,879	2,010	2,171
Hispanic	807	909	844	935	950	1,032	1,116	1,200	1,220	1,374	1,459	1,649	1,651	1,823	1,847	1,983
American Indian/Alaskan Native	91	118	81	88	105	90	104	85	142	129	141	157	183	205	200	198
Other or unknown race/ethnicity	2,688	1,496	1,252	1,591	1,466	1,599	979	1,236	954	1,058	1,214	1,432	1,429	1,813	1,790	2,098
Psychology																
Total	40,073	40,905	40,931	40,721	41,241	42,612	43,963	45,528	48,167	51,343	53,484	54,557	54,554	53,641	53,209	53,142
Temporary residents	1,394	1,433	1,387	1,492	1,502	1,539	1,647	1,631	1,818	1,988	1,933	1,881	2,343	2,087	1,973	2,005
U.S. citizens and permanent residents	38,679	39,472	39,544	39,229	39,739	41,073	42,316	43,897	46,349	49,355	51,551	52,676	52,211	51,554	51,236	51,137
White, non-Hispanic	30,297	32,716	32,182	32,757	33,166	34,785	35,920	37,227	39,246	40,990	42,426	42,662	42,062	40,146	39,327	38,699
Asian/Pacific Islander	441	531	544	559	619	727	747	817	962	1,040	1,278	1,470	1,583	1,598	1,776	1,892
Black, non-Hispanic	1,643	1,880	1,908	1,790	1,786	1,794	1,945	2,061	2,226	2,455	2,758	3,284	3,529	3,359	3,455	3,641
Hispanic	1,471	1,814	1,903	1,611	1,707	1,665	1,722	1,751	2,160	2,365	2,371	2,562	2,485	2,799	3,002	3,084
American Indian/Alaskan Native	138	135	116	135	134	152	177	180	235	252	290	289	317	330	359	340
Other or unknown race/ethnicity	4,689	2,396	2,891	2,377	2,327	1,950	1,805	1,861	1,520	2,253	2,428	2,409	2,235	3,322	3,317	3,481

See explanatory information and SOURCES at end of table.

Appendix table 3-5. Science and engineering graduate students, by field, citizenship, and race/ethnicity: 1982–97

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Field	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Social sciences																
Total	76,428	71,323	69,536	69,941	70,157	71,254	71,652	74,146	77,948	80,742	85,778	88,793	89,134	89,449	88,647	86,028
Temporary residents	12,474	12,653	12,572	13,320	13,971	14,558	15,235	15,316	15,487	15,721	15,676	15,190	14,759	14,704	15,135	14,705
U.S. citizens and permanent residents	63,954	58,670	56,964	56,621	56,186	56,696	56,417	58,830	62,461	65,021	70,102	73,603	74,375	74,745	73,512	71,323
White, non-Hispanic	47,794	45,189	43,509	43,252	43,685	44,315	44,562	46,286	49,386	51,435	54,541	56,873	57,298	56,093	54,217	51,767
Asian/Pacific Islander	1,411	1,366	1,468	1,431	1,509	1,708	1,615	1,830	1,868	1,989	2,585	2,854	3,244	3,343	3,341	3,443
Black, non-Hispanic	4,804	4,733	4,366	4,261	4,226	4,189	4,513	4,694	5,082	5,292	5,915	6,355	6,436	6,935	7,245	7,330
Hispanic	2,914	3,021	2,810	2,679	2,508	2,540	2,585	2,745	2,822	3,024	3,604	3,939	4,000	4,237	4,237	4,367
American Indian/ Alaskan Native	341	319	245	233	231	248	311	304	348	370	395	391	409	437	478	506
Other or unknown race/ethnicity	6,690	4,042	4,566	4,765	4,027	3,696	2,831	2,971	2,955	2,911	3,062	3,191	2,988	3,700	3,994	3,910
Engineering																
Total	83,687	91,119	92,712	95,991	101,874	103,953	102,829	104,043	107,625	113,576	118,035	116,858	113,023	107,199	103,223	101,008
Temporary residents	25,058	27,493	27,903	28,822	31,945	33,377	35,226	36,697	38,199	41,343	41,440	39,267	36,984	35,467	35,029	36,422
U.S. citizens and permanent residents	58,629	63,626	64,809	67,169	69,929	70,576	67,603	67,346	69,426	72,233	76,595	77,591	76,039	71,732	68,194	64,586
White, non-Hispanic	43,247	48,603	49,251	50,141	52,926	53,801	52,329	51,493	53,207	54,784	57,396	57,440	56,020	51,956	49,112	46,017
Asian/Pacific Islander	2,743	3,406	3,812	4,805	5,114	5,849	5,910	6,011	6,687	7,116	8,492	8,987	9,777	9,008	8,437	8,154
Black, non-Hispanic	1,130	1,378	1,445	1,387	1,452	1,416	1,500	1,616	1,786	2,025	2,374	2,559	2,784	2,856	2,895	2,874
Hispanic	1,095	1,441	1,491	1,481	1,602	1,730	1,719	1,707	1,886	2,124	2,463	2,694	2,861	2,808	2,935	2,811
American Indian/ Alaskan Native	171	180	192	122	130	123	143	122	152	185	177	211	242	231	234	238
Other or unknown race/ethnicity	10,243	8,618	8,618	9,233	8,705	7,657	6,002	6,397	5,708	5,999	5,693	5,700	4,355	4,873	4,581	4,492

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-6. Science and engineering graduate students in California, by citizenship, racial/ethnic background of U.S. citizens and permanent residents, and Carnegie classification by type of control: 1990–97

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Carnegie classification, citizenship and race/ethnicity	1990	1991	1992	1993	1994	1995	1996	1997
	Total, all institutions							
All institutions:								
Total	52,055	53,047	54,441	54,281	52,780	52,000	51,299	51,007
Total U.S. citizens and permanent residents	40,767	42,167	44,832	44,740	42,959	42,703	41,817	40,934
White, non-Hispanic	30,393	29,508	30,041	29,464	28,525	27,461	26,755	25,509
Asian/Pacific Islander	4,196	4,641	6,023	6,217	6,480	6,684	6,492	6,411
Black, non-Hispanic	1,360	1,474	1,639	1,658	1,794	1,857	1,896	2,008
Hispanic	1,897	2,117	2,432	2,545	2,661	2,876	3,034	3,133
American Indian/Alaskan Native	223	250	213	232	272	298	315	323
Other or unknown	2,698	4,177	4,484	4,624	3,227	3,527	3,325	3,550
Non-U.S. citizens	11,288	10,880	9,609	9,541	9,821	9,297	9,482	10,073
Research I:								
Total	25,799	25,771	26,520	26,535	25,899	25,362	25,081	24,795
Total U.S. citizens and permanent residents	18,504	18,432	19,517	19,469	18,683	18,705	18,374	17,883
White, non-Hispanic	14,617	14,090	14,435	13,922	13,085	12,576	12,261	11,765
Asian/Pacific Islander	2,119	2,327	2,707	3,038	3,122	3,309	3,316	3,188
Black, non-Hispanic	476	491	514	551	589	614	596	587
Hispanic	742	863	930	988	952	1,056	1,035	1,063
American Indian/Alaskan Native	66	70	70	75	95	108	102	117
Other or unknown	484	591	861	895	840	1,042	1,064	1,163
Non-U.S. citizens	7,295	7,339	7,003	7,066	7,216	6,657	6,707	6,912
Non-research I:								
Total	26,256	27,276	27,921	27,746	26,881	26,638	26,218	26,212
Total U.S. citizens and permanent residents	22,263	23,735	25,315	25,271	24,276	23,998	23,443	23,051
White, non-Hispanic	15,776	15,418	15,606	15,542	15,440	14,885	14,494	13,744
Asian/Pacific Islander	2,077	2,314	3,316	3,179	3,358	3,375	3,176	3,223
Black, non-Hispanic	884	983	1,125	1,107	1,205	1,243	1,300	1,421
Hispanic	1,155	1,254	1,502	1,557	1,709	1,820	1,999	2,070
American Indian/Alaskan Native	157	180	143	157	177	190	213	206
Other or unknown	2,214	3,586	3,623	3,729	2,387	2,485	2,261	2,387
Non-U.S. citizens	3,993	3,541	2,606	2,475	2,605	2,640	2,775	3,161

See explanatory information and SOURCES at end of table.

Appendix table 3-6. Science and engineering graduate students in California, by citizenship, racial/ethnic background of U.S. citizens and permanent residents, and Carnegie classification by type of control: 1990–97

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Carnegie classification, citizenship and race/ethnicity	1990	1991	1992	1993	1994	1995	1996	1997
	Public institutions							
All institutions:								
Total	31,235	32,125	32,829	32,056	31,797	31,185	30,579	29,961
Total U.S. citizens and permanent residents	24,468	25,800	27,752	27,233	26,760	26,464	25,711	24,600
White, non-Hispanic	17,666	17,150	17,471	16,695	16,928	16,034	15,649	14,606
Asian/Pacific Islander	2,660	3,079	4,153	4,199	4,460	4,559	4,272	4,120
Black, non-Hispanic	798	897	1,011	981	1,082	1,049	1,052	1,075
Hispanic	1,251	1,393	1,630	1,695	1,841	1,969	2,026	2,041
American Indian/Alaskan Native	123	142	135	142	156	185	200	204
Other or unknown	1,970	3,139	3,352	3,521	2,293	2,668	2,512	2,554
Non-U.S. citizens	6,767	6,325	5,077	4,823	5,037	4,721	4,868	5,361
Research I:								
Total	15,236	15,181	15,479	15,483	15,771	15,491	15,423	15,183
Total U.S. citizens and permanent residents	11,088	11,256	12,030	12,205	12,473	12,612	12,474	12,011
White, non-Hispanic	8,789	8,603	8,817	8,630	8,735	8,404	8,314	7,924
Asian/Pacific Islander	1,167	1,305	1,580	1,837	1,995	2,179	2,114	2,010
Black, non-Hispanic	258	284	289	301	339	339	341	334
Hispanic	466	536	604	644	666	729	710	704
American Indian/Alaskan Native	45	49	50	53	67	80	86	95
Other or unknown	363	479	690	740	671	881	909	944
Non-U.S. citizens	4,148	3,925	3,449	3,278	3,298	2,879	2,949	3,172
Non-research I:								
Total	15,999	16,944	17,350	16,573	16,026	15,694	15,156	14,778
Total U.S. citizens and permanent residents	13,380	14,544	15,722	15,028	14,287	13,852	13,237	12,589
White, non-Hispanic	8,877	8,547	8,654	8,065	8,193	7,630	7,335	6,682
Asian/Pacific Islander	1,493	1,774	2,573	2,362	2,465	2,380	2,158	2,110
Black, non-Hispanic	540	613	722	680	743	710	711	741
Hispanic	785	857	1,026	1,051	1,175	1,240	1,316	1,337
American Indian/Alaskan Native	78	93	85	89	89	105	114	109
Other or unknown	1,607	2,660	2,662	2,781	1,622	1,787	1,603	1,610
Non-U.S. citizens	2,619	2,400	1,628	1,545	1,739	1,842	1,919	2,189

See explanatory information and SOURCES at end of table.

Appendix table 3-6. Science and engineering graduate students in California, by citizenship, racial/ethnic background of U.S. citizens and permanent residents, and Carnegie classification by type of control: 1990–97

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Carnegie classification, citizenship and race/ethnicity	1990	1991	1992	1993	1994	1995	1996	1997
	Private institutions							
All institutions:								
Total	20,820	20,922	21,612	22,225	20,983	20,815	20,720	21,046
Total U.S. citizens and permanent residents	16,299	16,367	17,080	17,507	16,199	16,239	16,106	16,334
White, non-Hispanic	12,727	12,358	12,570	12,769	11,597	11,427	11,106	10,903
Asian/Pacific Islander	1,536	1,562	1,870	2,018	2,020	2,125	2,220	2,291
Black, non-Hispanic	562	577	628	677	712	808	844	933
Hispanic	646	724	802	850	820	907	1,008	1,092
American Indian/Alaskan Native	100	108	78	90	116	113	115	119
Other or unknown	728	1,038	1,132	1,103	934	859	813	996
Non-U.S. citizens	4,521	4,555	4,532	4,718	4,784	4,576	4,614	4,712
Research I:								
Total	10,563	10,590	11,041	11,052	10,128	9,871	9,658	9,612
Total U.S. citizens and permanent residents	7,416	7,176	7,487	7,264	6,210	6,093	5,900	5,872
White, non-Hispanic	5,828	5,487	5,618	5,292	4,350	4,172	3,947	3,841
Asian/Pacific Islander	952	1,022	1,127	1,201	1,127	1,130	1,202	1,178
Black, non-Hispanic	218	207	225	250	250	275	255	253
Hispanic	276	327	326	344	286	327	325	359
American Indian/Alaskan Native	21	21	20	22	28	28	16	22
Other or unknown	121	112	171	155	169	161	155	219
Non-U.S. citizens	3,147	3,414	3,554	3,788	3,918	3,778	3,758	3,740
Non-research I:								
Total	10,257	10,332	10,571	11,173	10,855	10,944	11,062	11,434
Total U.S. citizens and permanent residents	8,883	9,191	9,593	10,243	9,989	10,146	10,206	10,462
White, non-Hispanic	6,899	6,871	6,952	7,477	7,247	7,255	7,159	7,062
Asian/Pacific Islander	584	540	743	817	893	995	1,018	1,113
Black, non-Hispanic	344	370	403	427	462	533	589	680
Hispanic	370	397	476	506	534	580	683	733
American Indian/Alaskan Native	79	87	58	68	88	85	99	97
Other or unknown	607	926	961	948	765	698	658	777
Non-U.S. citizens	1,374	1,141	978	930	866	798	856	972

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-7. Science and engineering graduate students in Texas, by citizenship, racial/ethnic background of U.S. citizens and permanent residents, and Carnegie classification by type of control: 1990–97

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Carnegie classification, citizenship and racial/ethnic background	1990	1991	1992	1993	1994	1995	1996	1997
	Total, all institutions							
All institutions:								
Total	26,052	27,564	30,002	29,886	28,039	26,816	26,336	26,779
Total U.S. citizens and permanent residents	18,866	19,459	21,245	21,681	20,551	19,963	19,750	19,873
White, non-Hispanic	15,583	15,818	17,139	17,066	15,809	15,214	14,679	14,369
Asian/Pacific Islander	1,292	1,462	1,519	1,834	1,790	1,639	1,736	1,881
Black, non-Hispanic	648	738	885	955	863	875	996	1,032
Hispanic	1,078	1,250	1,476	1,527	1,508	1,597	1,745	1,796
American Indian/Alaskan Native	56	56	87	65	78	85	87	104
Other or unknown	209	135	139	234	503	553	507	691
Non-U.S. citizens	7,186	8,105	8,757	8,205	7,488	6,853	6,586	6,906
Research I:								
Total	4,306	4,559	4,715	4,722	4,550	4,199	3,529	3,864
Total U.S. citizens and permanent residents	2,651	2,739	3,017	3,048	2,900	2,722	2,355	2,442
White, non-Hispanic	2,403	2,471	2,674	2,674	2,461	2,322	2,012	2,024
Asian/Pacific Islander	73	61	127	145	154	142	123	184
Black, non-Hispanic	29	30	46	45	49	52	45	46
Hispanic	117	136	154	168	171	168	145	164
American Indian/Alaskan Native	9	8	7	8	10	9	8	7
Other or unknown	20	33	9	8	55	29	22	17
Non-U.S. citizens	1,655	1,820	1,698	1,674	1,650	1,477	1,174	1,422
Non-research I:								
Total	21,746	23,005	25,287	25,164	23,489	22,617	22,807	22,915
Total U.S. citizens and permanent residents	16,215	16,720	18,228	18,633	17,651	17,241	17,395	17,431
White, non-Hispanic	13,180	13,347	14,465	14,392	13,348	12,892	12,667	12,345
Asian/Pacific Islander	1,219	1,401	1,392	1,689	1,636	1,497	1,613	1,697
Black, non-Hispanic	619	708	839	910	814	823	951	986
Hispanic	961	1,114	1,322	1,359	1,337	1,429	1,600	1,632
American Indian/Alaskan Native	47	48	80	57	68	76	79	97
Other or unknown	189	102	130	226	448	524	485	674
Non-U.S. citizens	5,531	6,285	7,059	6,531	5,838	5,376	5,412	5,484

See explanatory information and SOURCES at end of table.

Appendix table 3-7. Science and engineering graduate students in Texas, by citizenship, racial/ethnic background of U.S. citizens and permanent residents, and Carnegie classification by type of control: 1990–97

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Carnegie classification, citizenship and racial/ethnic background	1990	1991	1992	1993	1994	1995	1996	1997
	Public institutions							
All institutions								
Total	23,421	24,852	26,844	26,601	24,785	23,443	22,925	23,306
Total U.S. citizens and permanent residents	16,864	17,399	18,807	19,089	17,983	17,227	16,971	17,063
White, non-Hispanic	13,942	14,106	15,117	14,969	13,752	13,071	12,546	12,248
Asian/Pacific Islander	1,110	1,321	1,407	1,651	1,609	1,438	1,512	1,655
Black, non-Hispanic	578	637	767	831	728	729	852	860
Hispanic	996	1,151	1,311	1,364	1,334	1,396	1,519	1,563
American Indian/Alaskan Native	55	52	79	56	63	68	75	84
Other or unknown	183	132	126	218	497	525	467	653
Non-U.S. citizens	6,557	7,453	8,037	7,512	6,802	6,216	5,954	6,243
Research I								
Total	4,306	4,559	4,715	4,722	4,550	4,199	3,529	3,864
Total U.S. citizens and permanent residents	2,651	2,739	3,017	3,048	2,900	2,722	2,355	2,442
White, non-Hispanic	2,403	2,471	2,674	2,674	2,461	2,322	2,012	2,024
Asian/Pacific Islander	73	61	127	145	154	142	123	184
Black, non-Hispanic	29	30	46	45	49	52	45	46
Hispanic	117	136	154	168	171	168	145	164
American Indian/Alaskan Native	9	8	7	8	10	9	8	7
Other or unknown	20	33	9	8	55	29	22	17
Non-U.S. citizens	1,655	1,820	1,698	1,674	1,650	1,477	1,174	1,422
Non-research I								
Total	19,115	20,293	22,129	21,879	20,235	19,244	19,396	19,442
Total U.S. citizens and permanent residents	14,213	14,660	15,790	16,041	15,083	14,505	14,616	14,621
White, non-Hispanic	11,539	11,635	12,443	12,295	11,291	10,749	10,534	10,224
Asian/Pacific Islander	1,037	1,260	1,280	1,506	1,455	1,296	1,389	1,471
Black, non-Hispanic	549	607	721	786	679	677	807	814
Hispanic	879	1,015	1,157	1,196	1,163	1,228	1,374	1,399
American Indian/Alaskan Native	46	44	72	48	53	59	67	77
Other or unknown	163	99	117	210	442	496	445	636
Non-U.S. citizens	4,902	5,633	6,339	5,838	5,152	4,739	4,780	4,821

See explanatory information and SOURCES at end of table.

Appendix table 3-7. Science and engineering graduate students in Texas, by citizenship, racial/ethnic background of U.S. citizens and permanent residents, and Carnegie classification by type of control: 1990–97

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Carnegie classification, citizenship and racial/ethnic background	1990	1991	1992	1993	1994	1995	1996	1997
	Private institutions							
All institutions:								
Total	2,631	2,712	3,158	3,285	3,254	3,373	3,411	3,473
Total U.S. citizens and permanent residents	2,002	2,060	2,438	2,592	2,568	2,736	2,779	2,810
White, non-Hispanic	1,641	1,712	2,022	2,097	2,057	2,143	2,133	2,121
Asian/Pacific Islander	182	141	112	183	181	201	224	226
Black, non-Hispanic	70	101	118	124	135	146	144	172
Hispanic	82	99	165	163	174	201	226	233
American Indian/Alaskan Native	1	4	8	9	15	17	12	20
Other or unknown	26	3	13	16	6	28	40	38
Non-U.S. citizens	629	652	720	693	686	637	632	663
Research I:								
Total	0	0	0	0	0	0	0	0
Total U.S. citizens and permanent residents	0	0	0	0	0	0	0	0
White, non-Hispanic	0	0	0	0	0	0	0	0
Asian/Pacific Islander	0	0	0	0	0	0	0	0
Black, non-Hispanic	0	0	0	0	0	0	0	0
Hispanic	0	0	0	0	0	0	0	0
American Indian/Alaskan Native	0	0	0	0	0	0	0	0
Other or unknown	0	0	0	0	0	0	0	0
Non-U.S. citizens	0	0	0	0	0	0	0	0
Non-research I:								
Total	2,631	2,712	3,158	3,285	3,254	3,373	3,411	3,473
Total U.S. citizens and permanent residents	2,002	2,060	2,438	2,592	2,568	2,736	2,779	2,810
White, non-Hispanic	1,641	1,712	2,022	2,097	2,057	2,143	2,133	2,121
Asian/Pacific Islander	182	141	112	183	181	201	224	226
Black, non-Hispanic	70	101	118	124	135	146	144	172
Hispanic	82	99	165	163	174	201	226	233
American Indian/Alaskan Native	1	4	8	9	15	17	12	20
Other or unknown	26	3	13	16	6	28	40	38
Non-U.S. citizens	629	652	720	693	686	637	632	663

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-8. Science and engineering graduate students, by sex, field, and citizenship, and by racial/ethnic background of U.S. citizens and permanent residents: 1994–97

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Field	Year	Total	U.S. citizens and permanent residents						Temporary residents
			White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Other/ unknown	
		Total enrollment							
Science and engineering, total	1994	431,251	255,719	26,474	17,611	13,281	1,383	14,627	102,156
	1995	422,555	245,889	25,901	18,283	14,117	1,516	18,311	98,538
	1996	415,363	238,077	25,947	19,071	14,638	1,539	17,937	98,154
	1997	407,644	227,936	26,078	19,363	14,988	1,599	18,871	98,809
Sciences, total	1994	318,228	199,699	16,697	14,827	10,420	1,141	10,272	65,172
	1995	315,356	193,933	16,893	15,427	11,309	1,285	13,438	63,071
	1996	312,140	188,965	17,510	16,176	11,703	1,305	13,356	63,125
	1997	306,636	181,919	17,924	16,489	12,177	1,361	14,379	62,387
Physical sciences	1994	34,449	18,422	1,923	856	675	67	797	11,709
	1995	33,417	17,487	1,780	897	732	76	1,020	11,425
	1996	32,355	16,762	1,743	986	743	60	865	11,196
	1997	31,108	15,749	1,638	952	784	70	1,001	10,914
Earth, atmospheric, & ocean sciences	1994	16,042	11,351	454	203	344	49	375	3,266
	1995	15,805	11,322	425	219	366	53	473	2,947
	1996	15,280	10,956	411	223	381	65	477	2,767
	1997	14,644	10,486	417	206	407	82	530	2,516
Mathematical sciences	1994	19,579	10,496	1,208	673	369	36	734	6,063
	1995	18,509	9,659	1,121	689	400	70	761	5,809
	1996	18,015	9,201	1,225	711	425	41	651	5,761
	1997	16,759	8,382	1,052	657	426	43	651	5,548
Computer sciences	1994	34,128	15,709	4,056	1,182	633	43	1,441	11,064
	1995	33,432	14,739	4,053	1,155	664	55	1,972	10,794
	1996	34,592	14,443	4,269	1,278	701	53	1,993	11,855
	1997	36,010	14,050	4,702	1,303	726	60	2,361	12,808
Agricultural sciences	1994	12,199	7,972	276	239	263	37	273	3,139
	1995	12,367	7,978	274	294	288	59	377	3,097
	1996	11,914	7,732	281	268	367	49	269	2,948
	1997	11,810	7,745	302	229	400	62	347	2,725
Biological sciences	1994	58,143	36,389	3,953	1,709	1,651	183	1,429	12,829
	1995	58,736	36,509	4,299	1,879	1,823	205	1,813	12,208
	1996	58,128	36,327	4,464	2,010	1,847	200	1,790	11,490
	1997	57,135	35,041	4,478	2,171	1,983	198	2,098	11,166
Psychology	1994	54,554	42,062	1,583	3,529	2,485	317	2,235	2,343
	1995	53,641	40,146	1,598	3,359	2,799	330	3,322	2,087
	1996	53,209	39,327	1,776	3,455	3,002	359	3,317	1,973
	1997	53,142	38,699	1,892	3,641	3,084	340	3,481	2,005
Social sciences	1994	89,134	57,298	3,244	6,436	4,000	409	2,988	14,759
	1995	89,449	56,093	3,343	6,935	4,237	437	3,700	14,704
	1996	88,647	54,217	3,341	7,245	4,237	478	3,994	15,135
	1997	86,028	51,767	3,443	7,330	4,367	506	3,910	14,705
Engineering	1994	113,023	56,020	9,777	2,784	2,861	242	4,355	36,984
	1995	107,199	51,956	9,008	2,856	2,808	231	4,873	35,467
	1996	103,223	49,112	8,437	2,895	2,935	234	4,581	35,029
	1997	101,008	46,017	8,154	2,874	2,811	238	4,492	36,422

See explanatory information and SOURCES at end of table.

Appendix table 3-8. Science and engineering graduate students, by sex, field, and citizenship, and by racial/ethnic background of U.S. citizens and permanent residents: 1994–97

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Field	Year	Total	U.S. citizens and permanent residents						Temporary residents
			White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Other/ unknown	
		Men							
Science and engineering, total	1994	272,120	153,625	17,152	8,049	7,198	693	9,136	76,267
	1995	262,341	146,057	16,371	8,211	7,406	753	11,181	72,362
	1996	253,629	139,370	15,953	8,253	7,673	768	10,588	71,024
	1997	245,615	131,453	15,769	8,344	7,696	804	11,008	70,541
Sciences, total	1994	177,146	106,833	9,190	6,082	4,917	514	5,483	44,127
	1995	173,156	102,983	9,143	6,254	5,210	571	7,069	41,926
	1996	168,658	98,885	9,297	6,301	5,407	577	6,765	41,406
	1997	163,322	93,702	9,406	6,385	5,525	624	7,385	40,295
Physical sciences	1994	25,290	13,745	1,253	497	444	49	562	8,740
	1995	24,327	13,004	1,159	529	470	57	722	8,386
	1996	23,303	12,387	1,096	550	455	42	621	8,152
	1997	22,257	11,571	1,045	508	500	46	689	7,898
Earth, atmospheric, & ocean sciences	1994	10,689	7,403	297	118	214	26	242	2,389
	1995	10,336	7,247	264	117	224	32	302	2,150
	1996	9,786	6,865	250	116	233	36	292	1,994
	1997	9,187	6,413	253	105	240	47	332	1,797
Mathematical sciences	1994	13,044	6,824	735	343	241	24	503	4,374
	1995	12,248	6,230	669	385	248	43	520	4,153
	1996	11,794	5,910	702	368	266	24	425	4,099
	1997	10,875	5,335	624	348	256	29	441	3,842
Computer sciences	1994	26,043	12,442	2,695	696	473	36	1,053	8,648
	1995	25,306	11,664	2,715	652	502	40	1,535	8,198
	1996	25,802	11,412	2,836	718	524	39	1,481	8,792
	1997	26,133	10,909	3,050	768	516	43	1,711	9,136
Agricultural sciences	1994	7,911	5,002	168	118	142	20	165	2,296
	1995	7,935	4,988	147	150	154	29	235	2,232
	1996	7,502	4,734	142	131	203	23	168	2,101
	1997	7,277	4,639	164	105	242	34	189	1,904
Biological sciences	1994	29,988	18,470	2,022	671	769	77	714	7,265
	1995	29,890	18,393	2,165	691	854	87	963	6,737
	1996	29,360	18,290	2,257	725	852	93	943	6,200
	1997	28,513	17,496	2,170	783	900	91	1,058	6,015
Psychology	1994	16,416	12,712	435	851	705	97	675	941
	1995	15,877	11,983	416	817	762	93	949	857
	1996	15,403	11,574	469	810	829	111	902	708
	1997	15,499	11,300	506	908	860	118	1,058	749
Social sciences	1994	47,765	30,235	1,585	2,788	1,929	185	1,569	9,474
	1995	47,237	29,474	1,608	2,913	1,996	190	1,843	9,213
	1996	45,708	27,713	1,545	2,883	2,045	209	1,953	9,360
	1997	43,581	26,039	1,594	2,860	2,011	216	1,907	8,954
Engineering	1994	94,974	46,792	7,962	1,967	2,231	179	3,653	32,140
	1995	89,185	43,074	7,228	1,957	2,196	182	4,112	30,436
	1996	84,971	40,485	6,656	1,952	2,266	191	3,803	29,618
	1997	82,293	37,751	6,363	1,959	2,171	180	3,623	30,246

See explanatory information and SOURCES at end of table.

Appendix table 3-8. Science and engineering graduate students, by sex, field, and citizenship, and by racial/ethnic background of U.S. citizens and permanent residents: 1994–97

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Field	Year	Total	U.S. citizens and permanent residents: White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Other/ unknown	Temporary residents
		Women							
Science and engineering, total	1994	159,131	102,094	9,322	9,562	6,083	690	5,491	25,889
	1995	160,214	99,832	9,530	10,072	6,711	763	7,130	26,176
	1996	161,734	98,707	9,994	10,818	6,965	771	7,349	27,130
	1997	162,029	96,483	10,309	11,019	7,292	795	7,863	28,268
Sciences, total	1994	141,082	92,866	7,507	8,745	5,503	627	4,789	21,045
	1995	142,200	90,950	7,750	9,173	6,099	714	6,369	21,145
	1996	143,482	90,080	8,213	9,875	6,296	728	6,571	21,719
	1997	143,314	88,217	8,518	10,104	6,652	737	6,994	22,092
Physical sciences	1994	9,159	4,677	670	359	231	18	235	2,969
	1995	9,090	4,483	621	368	262	19	298	3,039
	1996	9,052	4,375	647	436	288	18	244	3,044
	1997	8,851	4,178	593	444	284	24	312	3,016
Earth, atmospheric, & ocean sciences	1994	5,353	3,948	157	85	130	23	133	877
	1995	5,469	4,075	161	102	142	21	171	797
	1996	5,494	4,091	161	107	148	29	185	773
	1997	5,457	4,073	164	101	167	35	198	719
Mathematical sciences	1994	6,535	3,672	473	330	128	12	231	1,689
	1995	6,261	3,429	452	304	152	27	241	1,656
	1996	6,221	3,291	523	343	159	17	226	1,662
	1997	5,884	3,047	428	309	170	14	210	1,706
Computer sciences	1994	8,085	3,267	1,361	486	160	7	388	2,416
	1995	8,126	3,075	1,338	503	162	15	437	2,596
	1996	8,790	3,031	1,433	560	177	14	512	3,063
	1997	9,877	3,141	1,652	535	210	17	650	3,672
Agricultural sciences	1994	4,288	2,970	108	121	121	17	108	843
	1995	4,432	2,990	127	144	134	30	142	865
	1996	4,412	2,998	139	137	164	26	101	847
	1997	4,533	3,106	138	124	158	28	158	821
Biological sciences	1994	28,155	17,919	1,931	1,038	882	106	715	5,564
	1995	28,846	18,116	2,134	1,188	969	118	850	5,471
	1996	28,768	18,037	2,207	1,285	995	107	847	5,290
	1997	28,622	17,545	2,308	1,388	1,083	107	1,040	5,151
Psychology	1994	38,138	29,350	1,148	2,678	1,780	220	1,560	1,402
	1995	37,764	28,163	1,182	2,542	2,037	237	2,373	1,230
	1996	37,806	27,753	1,307	2,645	2,173	248	2,415	1,265
	1997	37,643	27,399	1,386	2,733	2,224	222	2,423	1,256
Social sciences	1994	41,369	27,063	1,659	3,648	2,071	224	1,419	5,285
	1995	42,212	26,619	1,735	4,022	2,241	247	1,857	5,491
	1996	42,939	26,504	1,796	4,362	2,192	269	2,041	5,775
	1997	42,447	25,728	1,849	4,470	2,356	290	2,003	5,751
Engineering	1994	18,049	9,228	1,815	817	580	63	702	4,844
	1995	18,014	8,882	1,780	899	612	49	761	5,031
	1996	18,252	8,627	1,781	943	669	43	778	5,411
	1997	18,715	8,266	1,791	915	640	58	869	6,176

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-9. Black graduate students in science and engineering fields in all institutions and in historically black colleges and universities (HBCUs), by field: 1982–97

Field	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
	Total, all black students															
Total, science and engineering fields	10,388	10,941	10,679	10,451	10,460	10,426	11,191	11,775	12,774	13,691	15,445	17,118	17,611	18,283	19,071	19,363
Sciences, total	9,258	9,563	9,234	9,064	9,008	9,010	9,691	10,159	10,988	11,666	13,071	14,559	14,827	15,427	16,176	16,489
Physical sciences	553	575	596	535	524	536	569	633	654	699	807	843	856	897	986	952
Earth, atmospheric, and ocean sciences	103	114	115	127	98	93	107	95	123	141	202	227	203	219	223	206
Mathematical sciences	356	403	393	409	449	441	422	463	511	524	579	710	673	689	71[illegible]	657
Computer sciences	528	568	567	622	702	769	839	848	985	1,093	1,108	1,168	1,182	1,155	1,278	1,303
Agricultural sciences	144	129	130	137	120	133	143	153	158	145	209	235	239	294	268	229
Biological sciences	1,127	1,161	1,159	1,183	1,103	1,055	1,153	1,212	1,249	1,317	1,493	1,737	1,709	1,879	2,010	2,171
Psychology	1,643	1,880	1,908	1,790	1,786	1,794	1,945	2,061	2,226	2,455	2,758	3,284	3,529	3,359	3,455	3,641
Social sciences	4,804	4,733	4,366	4,261	4,226	4,189	4,513	4,694	5,082	5,292	5,915	6,355	6,436	6,935	7,245	7,330
Engineering	1,130	1,378	1,445	1,387	1,452	1,416	1,500	1,616	1,786	2,025	2,374	2,559	2,784	2,856	2,895	2,874
	Black students in HBCUs															
Total, science and engineering fields	1,444	1,576	1,870	1,587	1,624	1,487	1,671	1,700	1,913	1,959	2,075	2,433	2,768	2,906	3,174	3,279
Sciences, total	1,400	1,507	1,754	1,508	1,536	1,412	1,565	1,558	1,771	1,816	1,898	2,221	2,515	2,612	2,883	2,995
Physical sciences	157	182	200	166	159	160	165	179	174	190	179	211	231	253	279	286
Earth, atmospheric, and ocean sciences	8	5	7	10	3	10	11	3	14	24	30	42	30	38	34	43
Mathematical sciences	53	83	95	114	134	134	106	107	108	107	111	169	155	139	157	128
Computer sciences	85	92	114	67	82	78	117	123	159	189	200	190	227	210	217	219
Agricultural sciences	10	6	9	21	22	13	11	10	34	37	70	84	102	130	111	88
Biological sciences	367	360	355	313	272	239	248	273	278	278	306	403	453	492	543	593
Psychology	117	172	237	217	232	196	280	276	313	317	352	428	489	413	430	490
Social sciences	603	607	737	600	632	582	627	587	691	674	650	694	828	937	1,112	1,148
Engineering	44	69	116	79	88	75	106	142	142	143	177	212	253	294	291	284
	Percent of black students in HBCUs															
Total, science and engineering fields	14	14	18	15	16	14	15	14	15	14	13	14	16	16	17	17
Sciences, total	15	16	19	17	17	16	16	15	16	16	15	15	17	17	18	18
Physical sciences	28	32	34	31	30	30	29	28	27	27	22	25	27	28	28	30
Earth, atmospheric, and ocean sciences	8	4	6	8	3	11	10	3	11	17	15	19	15	17	15	21
Mathematical sciences	15	21	24	28	30	30	25	23	21	20	19	26	23	20	22	20
Computer sciences	16	16	20	11	12	10	14	15	16	17	18	16	19	18	17	17
Agricultural sciences	7	5	7	15	18	10	8	7	22	26	34	41	43	44	41	38
Biological sciences	33	31	31	26	25	23	22	23	22	21	21	23	27	26	27	27
Psychology	7	9	12	12	13	11	14	13	14	13	13	13	14	12	12	14
Social sciences	13	13	17	14	15	14	14	13	14	13	11	11	13	14	15	16
Engineering	4	5	8	6	6	5	7	9	8	7	8	8	9	10	10	10

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

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Appendix table 3-10. Top 50 institutions enrolling Hispanic graduate students in science and engineering, ranked by number of Hispanic students enrolled in science and engineering in 1997: 1993–97

Rank	Academic institution	1993	1994	1995	1996	1997
	Total Hispanics in Graduate Student Survey Institutions	13,381	13,281	14,117	14,638	14,988
1	University of Puerto Rico, Rio Piedras Campus *	1,093	850	811	798	848
2	University of Puerto Rico, Mayaguez Campus *	345	332	400	519	517
3	Florida International University *	248	309	332	321	349
4	Caribbean Center for Advanced Studies *	178	202	324	320	319
5	University of Texas at El Paso *	166	172	191	230	212
6	Texas A&M University	190	182	190	223	202
7	California State University at Los Angeles *	131	149	168	195	196
8	University of California, Los Angeles	140	191	196	182	186
9	University of California at Berkeley	198	192	179	188	181
10	Texas A&M University-Kingsville *	125	127	132	131	177
11	University of Southern California	189	120	154	150	167
12	University of Texas at Austin	168	171	168	145	164
13	Stanford University	139	147	154	149	162
14	University of New Mexico *	172	141	182	143	162
15	University of Colorado	147	138	131	138	157
16	Nova Southeastern University	125	52	137	151	153
17	University of Florida	116	113	108	132	153
18	San Diego State University *	100	112	73	103	139
19	University of Miami *	173	189	140	158	139
20	University of Michigan	141	157	152	156	138
21	Arizona State University	130	129	127	127	126
22	New Mexico State University *	124	130	128	178	126
23	Teachers College, Columbia University	81	99	108	121	125
24	California State University-Long Beach	136	136	136	136	123
25	University of Wisconsin-Madison	107	121	113	105	119
26	Massachusetts Institute of Technology	74	68	95	117	116
27	University of Arizona	121	121	113	130	114
28	University of South Florida	98	107	130	97	114
29	Harvard University	104	118	119	109	112
30	University of Texas at San Antonio *	73	94	87	91	112
31	National University	57	50	51	115	111
32	George Washington University	102	92	96	134	109
33	University of California at Davis	99	53	102	107	106
34	New Jersey Institute of Technology	50	70	87	89	103
35	Purdue University	4	4	5	4	101
36	University of Central Florida	38	89	25	107	100
37	New York University	88	81	87	107	99
38	University of Massachusetts	60	55	62	59	96
39	California State University-Fresno *	64	73	87	86	95
40	University of Illinois at Urbana-Champaign	79	95	107	76	95
41	SUNY at Albany	56	53	58	76	94
42	California State University-Northridge *	116	113	79	73	91
43	American University	87	74	87	90	88
44	University of Puerto Rico, Medical Sciences Campus *	131	117	139	123	86
45	University of Washington	70	70	80	84	86
46	Cornell University	79	83	90	97	85
47	CUNY City College *	89	42	59	52	85
48	University of Maryland - College Park	54	66	73	79	84
49	University of California at San Diego	82	92	88	83	83
50	University of Houston, Clear Lake	65	55	60	68	83

* Denotes Hispanic serving institution.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-11. Hispanic graduate students in science and engineering fields in all institutions and in Puerto Rican colleges and universities, by field: 1982–97

Field	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
	Total, all Hispanic students															
Total, science and engineering fields	7,724	8,812	8,683	8,614	8,658	8,823	9,098	9,436	10,159	11,045	12,246	13,381	13,281	14,117	14,638	14,988
Sciences, total	6,629	7,371	7,192	7,133	7,056	7,093	7,379	7,729	8,273	8,921	9,783	10,687	10,420	11,309	11,703	12,177
Physical sciences	496	563	535	599	629	591	624	680	642	649	680	747	675	732	743	784
Earth, atmospheric, and ocean sciences	191	224	261	238	237	227	210	209	241	250	308	371	344	366	381	407
Mathematical sciences	274	315	278	244	257	251	303	289	328	316	341	375	331	369	376	385
Computer sciences	249	285	293	488	453	551	516	542	565	631	706	696	633	664	701	726
Agricultural sciences	211	225	254	321	302	221	278	297	272	279	279	308	263	288	367	400
Biological sciences	807	909	844	935	950	1,032	1,116	1,200	1,220	1,374	1,459	1,649	1,651	1,823	1,847	1,983
Psychology	1,471	1,814	1,903	1,611	1,707	1,665	1,722	1,751	2,160	2,365	2,371	2,562	2,485	2,799	3,002	3,084
Social sciences	2,914	3,021	2,810	2,679	2,508	2,540	2,585	2,745	2,822	3,024	3,604	3,939	4,000	4,237	4,237	4,367
Engineering	1,095	1,441	1,491	1,481	1,602	1,730	1,719	1,707	1,886	2,124	2,463	2,694	2,861	2,808	2,935	2,811
	Hispanic students in Puerto Rican colleges and universities															
Total, science and engineering fields	1,551	1,672	1,810	1,903	1,881	1,593	1,507	1,513	1,588	1,703	1,590	1,775	1,521	1,708	1,783	1,798
Sciences, total	1,490	1,610	1,732	1,813	1,784	1,500	1,410	1,446	1,524	1,612	1,478	1,624	1,374	1,544	1,581	1,630
Physical sciences	109	119	116	141	152	145	141	125	112	95	117	141	131	133	142	161
Earth, atmospheric, and ocean sciences	49	48	52	51	46	51	40	37	32	32	30	35	30	40	53	65
Mathematical sciences	74	77	64	53	65	62	72	72	73	35	33	27	0	9	5	5
Computer sciences	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Agricultural sciences	77	76	86	127	109	56	48	46	46	45	50	50	40	64	103	111
Biological sciences	149	146	150	148	153	164	185	197	160	241	188	240	208	249	238	257
Psychology	504	461	460	505	536	407	417	393	460	582	381	410	271	393	384	383
Social sciences	528	683	804	788	723	615	507	576	641	582	679	721	694	656	649	641
Engineering	61	62	78	90	97	93	97	67	64	91	112	151	147	164	202	168
	Percent of Hispanic students in Puerto Rican colleges and universities															
Total, science and engineering fields	20	19	21	22	22	18	17	16	16	15	13	13	11	12	12	12
Sciences, total	22	22	24	25	25	21	19	19	18	18	15	15	13	14	14	13
Physical sciences	22	21	22	24	24	25	23	18	17	15	17	19	19	18	19	21
Earth, atmospheric, and ocean sciences	26	21	20	21	19	22	19	18	13	13	10	9	9	11	14	16
Mathematical sciences	27	24	23	22	25	25	24	25	22	11	10	7	0	2	1	1
Computer sciences	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Agricultural sciences	36	34	34	40	36	25	17	15	17	16	18	16	15	22	28	28
Biological sciences	18	16	18	16	16	16	17	16	13	18	13	15	13	14	13	13
Psychology	34	25	24	31	31	24	24	22	21	25	16	16	11	14	13	12
Social sciences	18	23	29	29	29	24	20	21	23	19	19	18	17	15	15	15
Engineering	6	4	5	6	6	5	6	4	3	4	5	6	5	6	7	6

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-12. Graduate student enrollment,[1] by disability status, sex, race/ethnicity, age, and attendance status: 1996

Sex, race/ethnicity, age and attendance status	Total	Students with disabilities	Students without disabilities
Number	2,784,000	89,000	2,695,000
	[Percentage distribution]		
Sex			
Men	45.7	31.3	46.2
Women	54.3	68.7	53.8
Race/ethnicity			
White, non-Hispanic	80.6	73.9	80.9
Black, non-Hispanic	6.4	10.7	6.2
Hispanic	4.9	9.8	4.7
Asian/Pacific Islander	8.1	5.5	8.2
American Indian/Alaskan Native	--	--	--
Other	--	--	--
Age			
15 to 23	9.2	7.6	9.3
24 to 29	42.7	32.3	43.0
30 or older	48.1	60.0	47.7
Attendance status			
Part time	67.5	65.8	65.7
Full time	32.5	34.2	32.5

[1] Includes first-professional students.

KEY: -- Sample size too small for a reliable estimate.

NOTE: Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics. 1995–96 National Postsecondary Student Aid Study. (In National Center for Education Statistics, *Digest of Education Statistics: 1998* (NCES 1999-036), Table 211.)

Appendix table 3-13. Graduate enrollment, by disability status and field: 1996

Disability status	Total	Social/ behavioral sciences	Life and physical sciences	Engineering/ computer science/math	Humanities	Education	Business/ management	Health	Law	Other	Missing/ undeclared
	Percentage distribution										
Percentage											
Total (N=2,784,000)	100	7.8	6.3	8.3	9.7	26.1	17.1	13.0	5.2	2.9	3.5
Students without disabilities (N=2,695,000)	100	7.9	6.5	8.4	9.8	26.2	17.1	12.5	5.2	2.9	3.5
Students with disabilities (N=89,000)	100	5.8	2.1	3.7	6.2	23.8	14.8	28.6	4.1	3.8	7.1
Standard errors											
Total	NA	0.79	0.89	0.94	1.50	1.57	1.46	1.40	0.55	0.53	0.58
Students without disabilities	NA	0.81	0.90	0.96	1.53	1.60	1.50	1.37	0.56	0.54	0.59
Students with disabilities	NA	1.99	1.42	1.98	2.14	5.50	4.23	7.90	1.03	2.52	4.44

KEY: NA=Not applicable.

NOTE: Because of rounding, details may not add to totals.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study, data analysis system.

Appendix table 3-14. Science and engineering graduate students, by field, sex, and enrollment status: 1997

Field	Both sexes			Women			Men		
	Total	Full-time	Part-time	Total	Full-time	Part-time	Total	Full-time	Part-time
Science and engineering, total	407,644	280,612	127,032	162,029	110,486	51,543	245,615	170,126	75,489
Sciences, total	306,636	215,018	91,618	143,314	97,981	45,333	163,322	117,037	46,285
Physical sciences	31,108	26,892	4,216	8,851	7,434	1,417	22,257	19,458	2,799
Earth, atmospheric, and ocean sciences	14,644	10,550	4,094	5,457	3,874	1,583	9,187	6,676	2,511
Mathematical sciences	16,759	12,153	4,606	5,884	3,974	1,910	10,875	8,179	2,696
Computer sciences	36,010	18,320	17,690	9,877	4,795	5,082	26,133	13,525	12,608
Agricultural sciences	11,810	9,110	2,700	4,533	3,512	1,021	7,277	5,598	1,679
Biological sciences	57,135	46,998	10,137	28,622	22,967	5,655	28,513	24,031	4,482
Psychology	53,142	35,522	17,620	37,643	24,711	12,932	15,499	10,811	4,688
Social sciences	86,028	55,473	30,555	42,447	26,714	15,733	43,581	28,759	14,822
Engineering	101,008	65,594	35,414	18,715	12,505	6,210	82,293	53,089	29,204

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-15. Science and engineering graduate students, by enrollment status, field, citizenship, and race/ethnicity: 1997

		U.S. citizens and permanent residents							
Field	Total graduate students	Total	Black, non-Hispanic	American Indian/ Alaskan Native	Asian/ Pacific Islander	Hispanic	White, non-Hispanic	Other or unknown	Temporary residents
					Total enrollment				
Science and engineering, total	407,644	308,835	19,363	1,599	26,078	14,988	227,936	18,871	98,809
Sciences, total	306,636	244,249	16,489	1,361	17,924	12,177	181,919	14,379	62,387
Physical sciences	31,108	20,194	952	70	1,638	784	15,749	1,001	10,914
Earth, atmospheric, and ocean sciences	14,644	12,128	206	82	417	407	10,486	530	2,516
Mathematical sciences	16,759	11,211	657	43	1,052	426	8,382	651	5,548
Computer sciences	36,010	23,202	1,303	60	4,702	726	14,050	2,361	12,808
Agricultural sciences	11,810	9,085	229	62	302	400	7,745	347	2,725
Biological sciences	57,135	45,969	2,171	198	4,478	1,983	35,041	2,098	11,166
Psychology	53,142	51,137	3,641	340	1,892	3,084	38,699	3,481	2,005
Social sciences	86,028	71,323	7,330	506	3,443	4,367	51,767	3,910	14,705
Engineering	101,008	64,586	2,874	238	8,154	2,811	46,017	4,492	36,422
					Full-time				
Science and engineering, total	280,612	196,041	11,415	1,123	17,068	9,549	147,386	9,500	84,571
Sciences, total	215,018	161,197	9,736	983	12,335	7,957	122,693	7,493	53,821
Physical sciences	26,892	16,796	741	58	1,345	649	13,284	719	10,096
Earth, atmospheric, and ocean sciences	10,550	8,328	138	46	288	275	7,266	315	2,222
Mathematical sciences	12,153	7,277	387	32	696	241	5,581	340	4,876
Computer sciences	18,320	8,649	495	22	1,995	243	5,228	666	9,671
Agricultural sciences	9,110	6,741	176	47	237	294	5,725	262	2,369
Biological sciences	46,998	36,764	1,734	166	3,824	1,613	28,042	1,385	10,234
Psychology	35,522	33,855	2,218	262	1,421	2,097	26,236	1,621	1,667
Social sciences	55,473	42,787	3,847	350	2,529	2,545	31,331	2,185	12,686
Engineering	65,594	34,844	1,679	140	4,733	1,592	24,693	2,007	30,750
					Part-time				
Science and engineering, total	127,032	112,794	7,948	476	9,010	5,439	80,550	9,371	14,238
Sciences, total	91,618	83,052	6,753	378	5,589	4,220	59,226	6,886	8,566
Physical sciences	4,216	3,398	211	12	293	135	2,465	282	818
Earth, atmospheric, and ocean sciences	4,094	3,800	68	36	129	132	3,220	215	294
Mathematical sciences	4,606	3,934	270	11	356	185	2,801	311	672
Computer sciences	17,690	14,553	808	38	2,707	483	8,822	1,695	3,137
Agricultural sciences	2,700	2,344	53	15	65	106	2,020	85	356
Biological sciences	10,137	9,205	437	32	654	370	6,999	713	932
Psychology	17,620	17,282	1,423	78	471	987	12,463	1,860	338
Social sciences	30,555	28,536	3,483	156	914	1,822	20,436	1,725	2,019
Engineering	35,414	29,742	1,195	98	3,421	1,219	21,324	2,485	5,672

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-16. Full-time graduate students in science and engineering, by sex, field and primary source of support: 1997

Page 1 of 6

Field and primary source of support	Men		Women	
	Number	Percent	Number	Percent
Total, science and engineering:				
Total, all sources	170,126	100.0	110,486	100.0
Federal, total	38,010	22.3	18,679	16.9
Dept. of Defense	7,354	4.3	1,360	1.2
Dept. of HHS, total	8,938	5.3	7,798	7.1
NIH	8,133	4.8	7,153	6.5
Other HHS	805	0.5	645	0.6
NASA	1,976	1.2	589	0.5
NSF	9,531	5.6	3,697	3.3
USDA	1,555	0.9	1,047	0.9
All other Federal	8,656	5.1	4,188	3.8
Institutional support	72,212	42.4	47,065	42.6
Other outside support, total	16,068	9.4	7,124	6.4
All other U.S.	12,819	7.5	6,029	5.5
Foreign	3,249	1.9	1,095	1.0
Self-support	43,836	25.8	37,618	34.0
Sciences, total				
Total, all sources	117,037	100.0	97,981	100.0
Federal, total	25,028	21.4	15,823	16.1
Dept. of Defense	3,151	2.7	771	0.8
Dept. of HHS, total	8,270	7.1	7,558	7.7
NIH	7,576	6.5	6,949	7.1
Other HHS	694	0.6	609	0.6
NASA	928	0.8	376	0.4
NSF	5,872	5.0	2,774	2.8
USDA	1,405	1.2	983	1.0
All other Federal	5,402	4.6	3,361	3.4
Institutional support	53,025	45.3	42,459	43.3
Other outside support, total	8,655	7.4	5,519	5.6
All other U.S.	6,603	5.6	4,650	4.7
Foreign	2,052	1.8	869	0.9
Self-support	30,329	25.9	34,180	34.9
Physical sciences				
Total, all sources	19,458	100.0	7,434	100.0
Federal, total	7,068	36.3	2,376	32.0
Dept. of Defense	863	4.4	174	2.3
Dept. of HHS, total	1,264	6.5	689	9.3
NIH	1,047	5.4	590	7.9
Other HHS	217	1.1	99	1.3
NASA	433	2.2	153	2.1
NSF	2,552	13.1	814	10.9
USDA	21	0.1	10	0.1
All other Federal	1,935	9.9	536	7.2
Institutional support	10,041	51.6	4,103	55.2
Other outside support, total	1,338	6.9	538	7.2
All other U.S.	1,164	6.0	494	6.6
Foreign	174	0.9	44	0.6
Self-support	1,011	5.2	417	5.6

See explanatory information and SOURCES at end of table.

Appendix table 3-16. Full-time graduate students in science and engineering, by sex, field and primary source of support: 1997

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Field and primary source of support	Men		Women	
	Number	Percent	Number	Percent
Earth, atmospheric, & ocean sciences:				
Total, all sources	6,676	100.0	3,874	100.0
Federal, total	2,058	30.8	1,061	27.4
Dept. of Defense	281	4.2	85	2.2
Dept. of HHS, total	20	0.3	20	0.5
NIH	15	0.2	12	0.3
Other HHS	5	0.1	8	0.2
NASA	246	3.7	109	2.8
NSF	753	11.3	448	11.6
USDA	32	0.5	20	0.5
All other Federal	726	10.9	379	9.8
Institutional support	2,712	40.6	1,675	43.2
Other outside support, total	621	9.3	264	6.8
All other U.S.	481	7.2	220	5.7
Foreign	140	2.1	44	1.1
Self-support	1,285	19.2	874	22.6
Mathematical sciences:				
Total, all sources	8,179	100.0	3,974	100.0
Federal, total	881	10.8	289	7.3
Dept. of Defense	316	3.9	45	1.1
Dept. of HHS, total	72	0.9	24	0.6
NIH	49	0.6	17	0.4
Other HHS	23	0.3	7	0.2
NASA	15	0.2	4	0.1
NSF	274	3.4	117	2.9
USDA	11	0.1	5	0.1
All other Federal	193	2.4	94	2.4
Institutional support	5,730	70.1	2,736	68.8
Other outside support, total	339	4.1	148	3.7
All other U.S.	204	2.5	106	2.7
Foreign	135	1.7	42	1.1
Self-support	1,229	15.0	801	20.2
Computer sciences:				
Total, all sources	13,525	100.0	4,795	100.0
Federal, total	2,614	19.3	556	11.6
Dept. of Defense	1,220	9.0	211	4.4
Dept. of HHS, total	90	0.7	16	0.3
NIH	68	0.5	10	0.2
Other HHS	22	0.2	6	0.1
NASA	97	0.7	25	0.5
NSF	894	6.6	193	4.0
USDA	10	0.1	2	0.0
All other Federal	303	2.2	109	2.3
Institutional support	4,414	32.6	1,490	31.1
Other outside support, total	917	6.8	266	5.5
All other U.S.	791	5.8	234	4.9
Foreign	126	0.9	32	0.7
Self-support	5,580	41.3	2,483	51.8

See explanatory information and SOURCES at end of table.

Appendix table 3-16. Full-time graduate students in science and engineering, by sex, field and primary source of support: 1997

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Field and primary source of support	Men		Women	
	Number	Percent	Number	Percent
Agricultural sciences:				
Total, all sources	5,598	100.0	3,512	100.0
Federal, total	1,142	20.4	641	18.3
Dept. of Defense	29	0.5	10	0.3
Dept. of HHS, total	19	0.3	11	0.3
NIH	11	0.2	10	0.3
Other HHS	8	0.1	1	0.0
NASA	16	0.3	12	0.3
NSF	60	1.1	42	1.2
USDA	614	11.0	342	9.7
All other Federal	404	7.2	224	5.4
Institutional support	2,157	38.5	1,514	43.1
Other outside support, total	1,051	18.8	515	14.7
All other U.S.	795	14.2	432	12.3
Foreign	256	4.6	83	2.4
Self-support	1,248	22.3	842	24.0
Biological sciences:				
Total, all sources	24,031	100.0	22,967	100.0
Federal, total	8,609	35.8	7,665	33.4
Dept. of Defense	220	0.9	152	0.7
Dept. of HHS, total	6,206	25.8	5,599	24.4
NIH	5,894	24.5	5,329	23.2
Other HHS	312	1.3	270	1.2
NASA	60	0.2	49	0.2
NSF	857	3.6	678	3.0
USDA	476	2.0	449	2.0
All other Federal	790	3.3	738	3.2
Institutional support	10,443	43.5	9,879	43.0
Other outside support, total	1,933	8.0	1,674	7.3
All other U.S.	1,638	6.8	1,450	6.3
Foreign	295	1.2	224	1.0
Self-support	3,046	12.7	3,749	16.3
Psychology:				
Total, all sources	10,811	100.0	24,711	100.0
Federal, total	956	8.8	1,745	7.1
Dept. of Defense	66	0.6	47	0.2
Dept. of HHS, total	488	4.5	959	3.9
NIH	407	3.8	782	3.2
Other HHS	81	0.7	177	0.7
NASA	14	0.1	6	0.0
NSF	119	1.1	158	0.6
USDA	2	0.0	5	0.0
All other Federal	267	2.5	570	2.3
Institutional support	4,480	41.4	9,031	36.5
Other outside support, total	417	3.9	802	3.2
All other U.S.	391	3.6	771	3.1
Foreign	26	0.2	31	0.1
Self-support	4,958	45.9	13,133	53.1

See explanatory information and SOURCES at end of table.

Appendix table 3-16. Full-time graduate students in science and engineering, by sex, field and primary source of support: 1997

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Field and primary source of support	Men		Women	
	Number	Percent	Number	Percent
Social sciences:				
Total, all sources	28,759	100.0	26,714	100.0
Federal, total	1,700	5.9	1,490	5.6
Dept. of Defense	156	0.5	47	0.2
Dept. of HHS, total	111	0.4	240	0.9
NIH	85	0.3	199	0.7
Other HHS	26	0.1	41	0.2
NASA	47	0.2	18	0.1
NSF	363	1.3	324	1.2
USDA	239	0.8	160	0.6
All other Federal	784	2.7	711	2.7
Institutional support	13,048	45.4	12,031	45.0
Other outside support, total	2,039	7.1	1,312	4.9
All other U.S.	1,139	4.0	943	3.5
Foreign	900	3.1	369	1.4
Self-support	11,972	41.6	11,881	44.5
Engineering, total				
Total, all sources	53,089	100.0	12,505	100.0
Federal, total	12,982	24.5	2,856	22.8
Dept. of Defense	4,203	7.9	589	4.7
Dept. of HHS, total	668	1.3	240	1.9
NIH	557	1.0	204	1.6
Other HHS	111	0.2	36	0.3
NASA	1,048	2.0	213	1.7
NSF	3,659	6.9	923	7.4
USDA	150	0.3	64	0.5
All other Federal	3,254	6.1	827	6.6
Institutional support	19,187	36.1	4,606	36.8
Other outside support, total	7,413	14.0	1,605	12.8
All other U.S.	6,216	11.7	1,379	11.0
Foreign	1,197	2.3	226	1.8
Self-support	13,507	25.4	3,438	27.5
Chemical engineering				
Total, all sources	4,425	100.0	1,359	100.0
Federal, total	1,248	28.2	396	29.1
Dept. of Defense	141	3.2	26	1.9
Dept. of HHS, total	106	2.4	31	2.3
NIH	91	2.1	30	2.2
Other HHS	15	0.3	1	0.1
NASA	55	1.2	25	1.8
NSF	516	11.7	191	14.1
USDA	17	0.4	8	0.6
All other Federal	413	9.3	115	8.5
Institutional support	1,709	38.6	524	38.6
Other outside support, total	868	19.6	260	19.1
All other U.S.	732	16.5	216	15.9
Foreign	136	3.1	44	3.2
Self-support	600	13.6	179	13.2

See explanatory information and SOURCES at end of table.

Appendix table 3-16. Full-time graduate students in science and engineering, by sex, field and primary source of support: 1997

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Field and primary source of support	Men		Women	
	Number	Percent	Number	Percent
Civil engineering:				
Total, all sources	8,353	100.0	2,906	100.0
Federal, total	1,316	15.8	479	16.5
Dept. of Defense	190	2.3	42	1.4
Dept. of HHS, total	26	0.3	21	0.7
NIH	22	0.3	19	0.7
Other HHS	4	0.0	2	0.1
NASA	102	1.2	19	0.7
NSF	371	4.4	150	5.2
USDA	24	0.3	16	0.6
All other Federal	603	7.2	231	7.9
Institutional support	3,480	41.7	1,210	41.9
Other outside support, total	840	10.1	242	8.3
All other U.S.	655	7.8	207	7.1
Foreign	185	2.2	35	1.2
Self-support	2,717	32.5	966	33.2
Electrical engineering:				
Total, all sources	16,096	100.0	2,830	100.0
Federal, total	3,796	23.6	599	21.2
Dept. of Defense	1,741	10.8	227	8.0
Dept. of HHS, total	93	0.6	20	0.7
NIH	56	0.3	12	0.4
Other HHS	37	0.2	8	0.3
NASA	196	1.2	33	1.2
NSF	1,140	7.1	189	6.7
USDA	12	0.1	3	0.1
All other Federal	614	3.8	127	4.5
Institutional support	5,780	35.9	953	33.7
Other outside support, total	2,368	14.7	420	14.8
All other U.S.	2,092	13.0	359	12.7
Foreign	276	1.7	61	2.2
Self-support	4,152	25.8	858	30.3
Industrial engineering:				
Total, all sources	3,973	100.0	1,098	100.0
Federal, total	485	12.2	118	10.7
Dept. of Defense	172	4.3	21	1.9
Dept. of HHS, total	20	0.5	16	1.5
NIH	17	0.4	13	1.2
Other HHS	3	0.1	3	0.3
NASA	15	0.4	8	0.7
NSF	116	2.9	29	2.6
USDA	1	0.0	0	0.0
All other Federal	161	4.1	44	4.0
Institutional support	1,310	33.0	387	35.2
Other outside support, total	410	10.3	91	8.3
All other U.S.	328	8.3	76	6.9
Foreign	82	2.1	15	1.4
Self-support	1,768	44.5	502	45.7

See explanatory information and SOURCES at end of table.

Appendix table 3-16. Full-time graduate students in science and engineering, by sex, field and primary source of support: 1997

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Field and primary source of support	Men		Women	
	Number	Percent	Number	Percent
Mechanical engineering:				
Total, all sources	9,143	100.0	1,289	100.0
Federal, total	2,255	24.7	357	27.7
Dept. of Defense	664	7.3	93	7.2
Dept. of HHS, total	83	0.9	26	2.0
NIH	57	0.6	13	1.0
Other HHS	26	0.3	13	1.0
NASA	249	2.7	42	3.3
NSF	714	7.8	122	9.5
USDA	12	0.1	0	0.0
All other Federal	533	5.8	74	5.7
Institutional support	3,460	37.8	473	36.7
Other outside support, total	1,297	14.2	160	12.4
All other U.S.	1,139	12.5	144	11.2
Foreign	158	1.7	16	1.2
Self-support	2,131	23.3	299	23.2
Other engineering:				
Total, all sources	11,099	100.0	3,023	100.0
Federal, total	3,882	35.0	907	30.0
Dept. of Defense	1,295	11.7	180	6.0
Dept. of HHS, total	340	3.1	126	4.2
NIH	314	2.8	117	3.9
Other HHS	26	0.2	9	0.3
NASA	431	3.9	86	2.8
NSF	802	7.2	242	8.0
USDA	84	0.8	37	1.2
All other Federal	930	8.4	236	7.8
Institutional support	3,448	31.1	1,050	34.7
Other outside support, total	1,630	14.7	432	14.3
All other U.S.	1,270	11.4	377	12.5
Foreign	360	3.2	55	1.8
Self-support	2,139	19.3	634	21.0

SOURCE: National Science Foundation, Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 3-17. Percentage of full-time full-year science and engineering graduate students who received various forms of financial support, by race/ethnicity: 1996

[U.S. citizens and permanent residents only]

Race/ethnicity	Any aid	Loans	Grants	Research assistantship	Teaching assistantship
Total	82.8	33.4	51.6	15.7	20.3
White, non-Hispanic	87.5	35.6	50.6	13.0	18.6
Asian/Pacific Islander	72.0	21.2	49.9	33.9	41.7
Underrepresented minority [1]	74.1	42.7	62.1	18.7	10.9

[1] Underrepresented minority includes American Indian/Alaskan Native; black, non-Hispanic; and Hispanic.

SOURCE: U.S. Department of Education, National Center for Education Statistics, 1995–96 National Postsecondary Student Aid Study (NPSAS:96), in National Science Foundation/Division of Science Resources Studies, *Financial Aid Profile of Graduate Students in Science and Engineering* (forthcoming).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 4-1. Master's degrees awarded, by major field group: 1966–96

Year	All fields	Science & engineering fields									All other fields
		Total, science and engineering	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Biological/ agricultural sciences	Psychology	Social sciences	
1966	140,772	41,049	13,705	4,206	759	4,772	238	5,865	2,423	9,081	99,723
1967	157,892	44,988	13,921	4,405	971	5,284	449	6,712	2,898	10,348	112,904
1968	177,150	48,760	15,232	4,456	1,008	5,533	548	7,309	3,240	11,434	128,390
1969	194,414	52,382	15,248	4,755	1,124	5,723	1,012	7,799	3,738	12,983	142,032
1970	209,387	53,695	15,597	4,796	1,124	5,648	1,459	7,619	3,962	13,490	155,692
1971	231,486	56,454	16,367	5,115	1,227	5,201	1,588	7,604	4,438	14,914	175,032
1972	252,774	60,049	16,764	4,864	1,408	5,209	1,977	8,200	5,293	16,334	192,725
1973	264,525	62,046	16,545	4,769	1,470	5,033	2,113	8,514	5,882	17,720	202,479
1974	278,259	62,239	15,205	4,379	1,679	4,840	2,276	8,866	6,616	18,378	216,020
1975	293,651	63,198	15,167	4,298	1,503	4,338	2,299	9,030	7,104	19,459	230,453
1976	313,001	65,007	16,045	3,880	1,581	3,863	2,603	9,223	7,859	19,953	247,994
1977	318,241	67,397	16,012	3,641	1,659	3,698	2,798	10,060	8,320	21,209	250,844
1978	312,816	67,264	16,080	3,713	1,832	3,383	3,038	10,001	8,194	21,023	245,552
1979	302,075	64,226	15,279	3,650	1,777	3,046	3,055	10,016	8,031	19,372	237,849
1980	299,095	64,089	15,943	3,408	1,793	2,868	3,647	9,631	7,861	18,938	235,006
1981	296,798	64,366	16,451	3,366	1,876	2,569	4,218	9,107	8,039	18,740	232,432
1982	296,580	66,568	17,557	3,491	2,012	2,731	4,935	9,199	7,849	18,794	230,012
1983	290,931	67,733	18,886	3,285	1,959	2,856	5,321	9,136	8,439	17,851	223,198
1984	285,462	68,582	20,145	3,544	1,982	2,770	6,190	8,702	8,073	17,176	216,880
1985	287,213	70,578	20,972	3,605	2,160	2,903	7,101	8,208	8,481	17,148	216,635
1986	289,829	71,840	21,096	3,649	2,234	3,184	8,070	8,023	8,363	17,221	217,989
1987	290,532	72,603	22,070	3,574	2,051	3,327	8,481	7,775	8,165	17,160	217,929
1988	300,091	73,655	22,726	3,708	1,920	3,434	9,166	7,556	7,925	17,220	226,436
1989	311,050	76,425	23,743	3,876	1,819	3,430	9,399	7,523	8,652	17,983	234,625
1990	324,947	77,788	23,995	3,805	1,596	3,684	9,643	7,527	9,308	18,230	247,159
1991	338,498	78,368	24,013	3,777	1,499	3,632	9,324	7,406	9,802	18,915	260,130
1992	354,207	81,107	25,018	3,922	1,425	3,665	9,655	7,885	9,852	19,685	273,100
1993	370,373	86,425	27,664	3,965	1,397	3,751	10,349	8,112	10,412	20,775	284,548
1994	389,008	91,411	28,717	4,263	1,418	3,804	10,546	8,686	11,572	22,405	297,597
1995	399,428	94,309	28,630	4,241	1,483	3,932	10,563	9,069	13,132	23,259	305,119
1996	408,932	95,313	27,761	4,364	1,487	3,742	10,613	10,307	13,043	23,996	313,619

NOTE: For the years 1966–70 the science and engineering total includes degrees granted for "other" sciences; these degrees are not included in any of the specific categories. These degrees constitute less than 2 percent of the total.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 4-2. Master's degrees awarded to women, by major field group: 1966–96

Year	All fields	Science & engineering fields: Total, science and engineering	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Biological/agricultural sciences	Psychology	Social sciences	All other fields	Index of dissimilarity [1]
1966	47,588	5,469	76	483	45	1,001	17	1,219	798	1,830	42,119	17.7
1967	54,713	6,306	78	498	55	1,284	26	1,353	927	2,085	48,407	17.0
1968	63,401	7,209	99	564	71	1,331	30	1,631	1,011	2,472	56,192	16.2
1969	72,533	8,200	113	579	89	1,493	73	1,766	1,154	2,933	64,333	15.6
1970	83,241	9,722	169	722	125	1,674	135	1,964	1,478	3,455	73,519	14.0
1971	92,896	10,338	186	736	116	1,524	164	2,058	1,651	3,903	82,558	13.3
1972	102,689	11,328	271	736	152	1,552	225	2,186	2,033	4,173	91,361	12.7
1973	109,525	11,813	278	669	176	1,505	225	2,108	2,367	4,485	97,712	12.7
1974	119,915	12,711	347	690	197	1,500	293	2,233	2,630	4,821	107,204	11.8
1975	131,536	13,788	372	653	194	1,428	338	2,275	3,045	5,483	117,748	11.0
1976	145,256	15,015	568	605	220	1,313	377	2,471	3,671	5,790	130,241	10.4
1977	150,031	16,498	698	660	226	1,300	466	2,841	4,004	6,303	133,533	10.2
1978	151,108	17,230	843	653	290	1,150	567	3,020	4,263	6,444	133,878	10.3
1979	148,303	17,612	937	679	310	1,057	575	3,231	4,343	6,480	[illegible]	9.7
1980	147,936	18,085	1,123	638	336	1,036	764	3,129	4,464	6,595	129,851	9.6
1981	149,367	18,861	1,329	675	406	877	971	3,046	4,668	6,889	130,506	9.5
1982	150,639	20,011	1,575	747	452	910	1,310	3,303	4,621	7,093	130,628	9.6
1983	145,817	20,999	1,755	685	444	985	1,508	3,433	5,185	7,004	124,818	9.5
1984	141,464	21,533	2,100	846	465	964	1,811	3,399	5,093	6,855	119,931	9.6
1985	143,497	22,331	2,244	830	521	1,016	2,037	3,327	5,417	6,939	121,166	9.8
1986	145,897	23,219	2,400	913	517	1,118	2,412	3,344	5,426	7,089	122,678	9.7
1987	148,877	23,844	2,770	890	520	1,301	2,496	3,338	5,327	7,202	125,033	9.7
1988	154,688	23,835	2,808	891	487	1,377	2,464	3,244	5,326	7,238	130,853	9.9
1989	161,651	25,580	3,082	1,040	482	1,370	2,626	3,313	5,838	7,829	136,071	9.6
1990	170,922	26,558	3,269	1,051	378	1,476	2,675	3,447	6,283	7,979	144,364	9.2
1991	181,603	27,927	3,357	1,074	383	1,486	2,761	3,431	6,808	8,627	153,676	8.6
1992	191,908	28,950	3,669	1,088	368	1,446	2,675	3,658	6,923	9,123	162,958	8.6
1993	201,220	30,971	4,094	1,171	391	1,532	2,795	3,731	7,484	9,773	170,249	8.8
1994	212,246	33,441	4,423	1,233	424	1,493	2,729	4,171	8,285	10,683	178,805	8.7
1995	220,230	35,791	4,632	1,283	451	1,579	2,786	4,329	9,397	11,334	184,439	8.3
1996	228,572	37,453	4,752	1,450	436	1,506	2,850	5,048	9,373	12,038	191,119	7.8

[1] The dissimilarity index is a measure of the percentage of women master's recipients who would need to switch fields of study to match the percentage distribution of men receiving master's degrees. The index is calculated as the sum of the absolute difference between the percentage of women master's degree recipients earning degrees in each field and the percentage of men master's degree recipients earning degrees in each field divided by 2.

NOTE: For the years 1966–70 the science and engineering total includes degrees granted for "other" sciences; these degrees are not included in any of the specific categories. These degrees constitute less than 2 percent of the total.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 4-3. Women as a percentage of all master's degree recipients, by major field group: 1966–96

Year	All fields	Science & engineering fields									All other fields
		Total science and engineering	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Biological/ agricultural sciences	Psychology	Social sciences	
1966	33.8	13.3	0.6	11.5	5.9	21.0	7.1	20.8	32.9	20.2	42.2
1967	34.7	14.0	0.6	11.3	5.7	24.3	5.8	20.2	32.0	20.1	42.9
1968	35.8	14.8	0.6	12.7	7.0	24.1	5.5	22.3	31.2	21.6	43.8
1969	37.3	15.7	0.7	12.2	7.9	26.1	7.2	22.6	30.9	22.6	45.3
1970	39.8	18.1	1.1	15.1	11.1	29.6	9.3	25.8	37.3	25.6	47.2
1971	40.1	18.3	1.1	14.4	9.5	29.3	10.3	27.1	37.2	26.2	47.2
1972	40.6	18.9	1.6	15.1	10.8	29.8	11.4	26.7	38.4	25.5	47.4
1973	41.4	19.0	1.7	14.0	12.0	29.9	10.6	24.8	40.2	25.3	48.3
1974	43.1	20.4	2.3	15.8	11.7	31.0	12.9	25.2	39.8	26.2	49.6
1975	44.8	21.8	2.5	15.2	12.9	32.9	14.7	25.2	42.9	28.2	51.1
1976	46.4	23.1	3.5	15.6	13.9	34.0	14.5	26.8	46.7	29.0	52.5
1977	47.1	24.5	4.4	19.1	13.6	35.2	16.7	28.2	48.1	29.7	53.2
1978	48.3	25.6	5.2	17.6	15.8	34.0	18.7	30.2	52.0	30.7	54.5
1979	49.1	27.4	6.1	18.6	17.4	34.7	18.8	32.3	54.1	33.5	54.9
1980	49.5	28.2	7.0	18.7	18.7	36.1	20.9	32.5	56.8	34.8	55.3
1981	50.3	29.3	8.1	20.1	21.6	34.1	23.0	33.4	58.1	36.8	56.1
1982	50.8	30.1	9.0	21.4	22.5	33.3	26.5	35.9	58.9	37.7	56.8
1983	50.1	31.0	9.3	20.9	22.7	34.5	28.3	37.6	61.4	39.2	55.9
1984	49.6	31.4	10.4	23.9	23.5	34.8	29.3	39.1	63.1	39.9	55.3
1985	50.0	31.6	10.7	23.0	24.1	35.0	28.7	40.5	63.9	40.5	55.9
1986	50.3	32.3	11.4	25.0	23.1	35.1	29.9	41.7	64.9	41.2	56.3
1987	51.2	32.8	12.6	24.9	25.4	39.1	29.4	42.9	65.2	42.0	57.4
1988	51.5	32.4	12.4	24.0	25.4	40.1	26.9	42.9	67.2	42.0	57.8
1989	52.0	33.5	13.0	26.8	26.5	39.9	27.9	44.0	67.5	43.5	58.0
1990	52.6	34.1	13.6	27.6	23.7	40.1	27.7	45.8	67.5	43.8	58.4
1991	53.6	35.6	14.0	28.4	25.6	40.9	29.6	46.3	69.5	45.6	59.1
1992	54.2	35.7	14.7	27.7	25.8	39.5	27.7	46.4	70.3	46.3	59.7
1993	54.2	35.8	14.8	29.5	28.0	40.8	27.0	46.0	71.9	47.0	59.8
1994	54.6	36.6	15.4	28.9	29.9	39.2	25.9	48.0	71.6	47.7	60.1
1995	55.1	38.0	16.2	30.3	30.4	40.2	26.4	47.7	71.6	48.7	60.4
1996	55.9	39.3	17.1	33.2	29.3	40.2	26.9	49.0	71.9	50.2	60.9

NOTE: For the years 1966–70 the science and engineering total includes degrees granted for "other" sciences; these degrees are not included in any of the specific categories. These degrees constitute less than 2 percent of the total.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 4-4. Master's degrees in science and engineering, by citizenship, field, and race/ethnicity of recipient: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Total, all recipients							
Total, all fields	311,050	324,947	338,498	354,207	370,973	389,008	399,428	408,932
Total science and engineering	70,333	72,228	72,828	76,184	81,415	86,080	88,431	88,730
Physical sciences[1]	5,703	5,411	5,282	5,352	5,365	5,688	5,735	5,854
Mathematical sciences	3,430	3,684	3,632	4,019	4,084	4,108	4,190	4,037
Computer science	9,399	9,643	9,324	9,530	10,167	10,421	10,332	10,223
Biological sciences	4,953	4,893	4,806	4,816	4,798	5,217	5,423	6,207
Agricultural sciences	2,604	2,662	2,625	3,058	3,299	3,435	3,612	4,032
Social sciences	11,857	12,642	13,350	14,119	15,024	16,230	16,501	16,758
Psychology	8,652	9,308	9,802	10,280	11,020	12,274	14,021	13,862
Engineering	23,735	23,985	24,007	25,010	27,658	28,707	28,617	27,757
Non-S&E[2]	240,717	252,719	265,670	278,023	289,558	302,928	310,997	320,202
	U.S. citizens and permanent residents, total[3]							
Total, all fields	278,927	290,345	300,887	314,555	326,864	342,502	350,672	360,682
Total science and engineering	55,190	55,890	55,779	58,177	61,265	65,201	67,110	68,151
Physical sciences[1]	4,465	4,047	3,778	3,814	3,763	3,918	3,980	4,119
Mathematical sciences	2,454	2,649	2,573	2,907	2,946	3,013	3,034	2,956
Computer science	6,957	7,080	6,505	6,361	6,388	6,509	6,452	6,352
Biological sciences	4,317	4,164	4,057	4,021	3,949	4,284	4,543	5,230
Agricultural sciences	1,974	2,023	2,022	2,356	2,605	2,727	2,948	3,371
Social sciences	9,642	10,258	10,872	11,629	12,387	13,487	13,695	13,938
Psychology	8,393	8,923	9,485	9,978	10,688	11,913	13,537	13,423
Engineering	16,988	16,746	16,487	17,111	18,539	19,350	18,921	18,762
Non-S&E[2]	223,737	234,455	245,108	256,378	265,599	277,301	283,562	292,531
	White, non-Hispanics							
Total, all fields	230,322	236,874	247,524	257,062	265,668	273,913	277,437	282,713
Total science and engineering	43,945	44,450	44,513	45,649	47,975	50,711	51,417	51,791
Physical sciences[1]	3,766	3,401	3,129	3,067	3,078	3,145	3,179	3,326
Mathematical sciences	2,032	2,169	2,068	2,336	2,354	2,379	2,342	2,227
Computer science	4,786	4,851	4,637	4,407	4,464	4,286	4,205	4,113
Biological sciences	3,679	3,501	3,353	3,251	3,144	3,453	3,589	4,080
Agricultural sciences	1,817	1,820	1,818	2,075	2,282	2,261	2,474	2,926
Social sciences	7,958	8,360	8,900	9,523	9,923	10,758	10,700	10,807
Psychology	7,075	7,489	7,973	8,238	8,810	9,960	11,107	10,739
Engineering	12,832	12,859	12,635	12,752	13,920	14,469	13,821	13,573
Non-S&E[2]	186,377	192,424	203,011	211,413	217,693	223,202	226,020	230,922

See explanatory information and SOURCE at end of table.

Appendix table 4-4. Master's degrees in science and engineering, by citizenship, field, and race/ethnicity of recipient: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Asians/Pacific Islanders							
Total, all fields	10,174	9,994	11,070	12,293	13,169	14,559	15,906	17,281
Total science and engineering	4,100	4,055	4,310	4,763	4,846	5,422	5,683	5,942
Physical sciences [1]	278	234	251	295	249	284	288	304
Mathematical sciences	178	184	189	201	197	233	239	235
Computer science	894	941	1,014	1,105	1,106	1,228	1,239	1,237
Biological sciences	223	225	231	264	305	332	417	519
Agricultural sciences	44	45	50	51	61	82	97	110
Social sciences	360	404	397	441	477	550	533	586
Psychology	131	159	170	183	191	270	298	330
Engineering	1,992	1,863	2,008	2,223	2,260	2,443	2,572	2,621
Non-S&E [1]	6,074	5,939	6,760	7,530	8,323	9,137	10,223	11,339
Index of dissimilarity [4]	23.4	23.7	22.9	23.2	21.1	20.9	20.1	18.8
	Black, non-Hispanics							
Total, all fields	13,455	14,473	15,857	17,420	18,897	20,936	22,954	24,588
Total science and engineering	1,652	1,847	2,090	2,356	2,554	2,849	3,339	3,518
Physical sciences [1]	78	87	73	98	105	127	147	116
Mathematical sciences	59	70	100	77	98	109	151	151
Computer science	198	232	283	316	308	365	347	379
Biological sciences	124	110	137	149	135	142	162	198
Agricultural sciences	36	28	51	59	70	78	74	88
Social sciences	407	462	594	660	730	803	930	965
Psychology	395	471	454	531	544	636	863	947
Engineering	355	387	398	466	564	589	665	674
Non-S&E [1]	11,803	12,626	13,767	15,064	16,343	18,087	19,615	21,070
Index of dissimilarity [4]	6.8	6.1	5.0	4.4	4.7	5.1	4.2	4.3
	Hispanics							
Total, all fields	8,133	8,495	9,684	10,256	11,371	13,177	13,905	15,394
Total science and engineering	1,585	1,587	1,736	1,806	2,092	2,514	2,585	2,730
Physical sciences [1]	92	98	96	93	114	114	129	127
Mathematical sciences	34	51	85	66	78	75	75	91
Computer science	144	118	128	149	162	169	198	173
Biological sciences	126	120	136	146	151	138	167	191
Agricultural sciences	48	44	49	49	89	184	96	95
Social sciences	313	341	383	396	474	557	553	596
Psychology	360	369	391	419	463	558	656	709
Engineering	468	446	468	488	581	719	711	748
Non-S&E [1]	6,548	6,908	7,948	8,450	9,279	10,663	11,320	12,664
Index of dissimilarity [4]	1.9	1.8	1.3	1.3	1.3	1.6	1.0	1.5

See explanatory information and SOURCE at end of table.

Appendix table 4-4. Master's degrees in science and engineering, by citizenship, field, and race/ethnicity of recipient: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	American Indians/Alaskan Natives							
Total, all fields	1,082	1,050	1,125	1,228	1,344	1,618	1,542	1,693
Total science and engineering	209	181	200	198	253	273	299	304
Physical sciences [1]	18	9	13	18	12	16	19	10
Mathematical sciences	6	6	9	4	8	6	11	6
Computer science	39	7	14	15	14	18	16	24
Biological sciences	17	14	13	12	26	17	20	17
Agricultural sciences	6	8	8	7	8	11	13	14
Social sciences	57	65	54	62	78	83	72	97
Psychology	33	37	49	38	57	62	85	80
Engineering	33	35	40	42	50	60	43	56
Non-S&E [2]	873	869	925	1,030	1,091	1,345	1,243	1,389
Index of dissimilarity [3]	3.4	4.3	2.5	3.1	3.6	3.0	3.7	2.9
	U.S. citizens and permanent residents, unknown race/ethnicity							
Total, all fields	15,761	19,459	15,627	16,296	16,415	18,299	18,928	19,013
Total science and engineering	3,699	3,770	2,930	3,405	3,545	3,432	3,787	3,866
Physical sciences [1]	233	218	216	243	205	232	218	236
Mathematical sciences	145	169	122	223	211	211	216	246
Computer science	896	931	429	369	334	443	447	426
Biological sciences	148	194	187	199	188	202	188	225
Agricultural sciences	23	78	46	115	115	111	194	138
Social sciences	547	626	544	547	705	736	887	887
Psychology	399	398	448	569	623	427	528	618
Engineering	1,308	1,156	938	1,140	1,164	1,070	1,109	1,090
Non-S&E [2]	12,062	15,689	12,697	12,891	12,870	14,867	15,141	15,147
Index of dissimilarity [3]	5.4	3.2	1.9	3.6	3.7	1.9	3.0	3.1
	Nonresident aliens [4]							
Total, all fields	32,123	34,602	37,611	39,652	44,109	46,506	48,756	48,250
Total science and engineering	15,143	16,338	17,049	18,007	20,150	20,879	21,321	20,579
Physical sciences [1]	1,238	1,364	1,504	1,538	1,602	1,770	1,755	1,735
Mathematical sciences	976	1,035	1,059	1,112	1,138	1,095	1,156	1,081
Computer science	2,442	2,563	2,819	3,169	3,779	3,912	3,890	3,871
Biological sciences	636	729	749	795	849	933	880	977
Agricultural sciences	630	639	603	702	694	708	664	661
Social sciences	2,215	2,384	2,478	2,490	2,637	2,743	2,806	2,820
Psychology	259	385	317	302	332	361	484	439
Engineering	6,747	7,239	7,520	7,899	9,119	9,357	9,696	8,995
Non-S&E [2]	16,980	18,264	20,562	21,645	23,959	25,627	27,435	27,671

See explanatory information and SOURCE at end of table.

Appendix table 4-4. Master's degrees in science and engineering, by citizenship, field, and race/ethnicity of recipient: 1989–96

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In this table, "Physical science" includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry.

Non-S&E refers to non-science and non-engineering.

Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

The dissimilarity index is a measure of the percentage of master's degree recipients in a racial/ethnic group who would need to switch fields of study to match the percentage distribution by field of white students receiving master's degrees. The index is calculated as the sum of the absolute difference between the percentage of degree recipients in a particular racial/ethnic group earning master's degrees in each field and the percentage of white degree recipients earning master's degrees in each field divided by 2.

Nonresident aliens include foreign citizens on temporary visas only. No racial/ethnic data are collected for this group.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resource Studies; data from U.S. Department of Education, National Center for Education Statistic, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 4-5. Master's degrees, by detailed field and race/ethnicity of recipient: 1996

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Field	Total, all recipients	U.S. citizens and permanent residents[1]							Non-resident aliens[2]
		Total	White non-Hispanics	Asians/ Pacific Islanders	Black non-Hispanics	Hispanics	American Indians/ Alaskan Natives	Unknown	
Total, all fields	408,932	360,682	282,713	17,281	24,588	15,394	1,693	19,013	48,250
Sciences	67,552	54,870	41,773	3,707	3,746	2,342	265	3,037	12,682
Natural sciences	30,513	22,199	16,809	2,445	983	692	72	1,198	8,314
Physical sciences[3]	5,851	4,117	3,324	304	116	127	10	236	1,734
Astronomy	115	94	79	7	1	4	0	3	21
Chemistry	2,273	1,468	1,099	184	65	46	3	71	805
Physics	1,686	1,082	866	77	32	39	2	66	604
Earth, atmospheric, & ocean sciences	1,487	1,238	1,074	37	11	27	5	84	249
Atmospheric sciences	199	163	148	6	0	1	0	8	36
Geosciences	1,146	962	853	28	9	25	4	43	184
Oceanography	142	113	73	3	2	1	1	33	29
Other physical sciences	290	235	206	3	7	11	0	8	55
Mathematics	3,742	2,712	2,083	220	145	88	5	171	1,030
Computer sciences	10,613	6,712	4,353	1,283	435	188	26	427	3,901
Biological sciences	6,286	5,295	4,131	528	199	194	17	226	991
Biology, general	2,648	2,326	1,810	179	103	113	11	110	322
Biochemistry & biophysics	319	219	140	53	9	5	0	12	100
Botany	228	189	164	6	4	4	0	11	39
Cell & molecular biology	181	145	99	28	4	6	2	6	36
Microbiology/bacteriology	324	250	185	39	8	9	0	9	74
Zoology	815	693	558	90	16	15	0	14	122
Biological sciences, other	1,692	1,408	1,124	124	54	39	4	63	284
Agricultural sciences	4,021	3,363	2,918	110	88	95	14	138	658
Psychology	13,043	12,619	10,071	322	870	667	78	611	424
Psychology, general	4,794	4,615	3,772	150	225	212	24	232	179
Clinical psychology	1,411	1,374	1,129	35	50	67	6	87	37
Counseling psychology	4,317	4,197	3,348	93	263	278	28	187	120
Industrial & organizational psychology	844	816	569	15	167	46	4	15	28
Psychology, other	1,677	1,617	1,253	29	165	64	16	90	60
Social sciences	23,996	20,052	14,893	940	1,893	983	115	1,228	3,944
Economics	2,964	1,620	1,205	144	96	64	3	108	1,344
Political science	13,370	11,580	8,551	500	1,198	593	48	690	1,790
Sociology	1,822	1,647	1,160	65	261	87	20	54	175
Other social sciences	5,840	5,205	3,977	231	338	239	44	376	635
Engineering	27,761	18,765	13,576	2,621	674	748	56	1,090	8,996
Aeronautical/astronautical engineering	774	576	427	48	10	10	5	76	198
Chemical engineering	1,416	820	605	98	33	43	4	37	596
Civil engineering	5,002	3,664	2,849	381	116	147	9	162	1,338
Electrical engineering	8,156	4,994	3,165	1,096	192	208	15	318	3,162
Industrial engineering	3,027	2,044	1,479	196	112	130	3	124	983
Materials/metallurgical engineering	774	501	396	51	9	21	2	22	273
Mechanical engineering	4,009	2,806	2,119	328	85	98	11	165	1,203
Other engineering	4,603	3,360	2,536	423	117	91	7	186	1,243
Non-S&E[4]	313,611	287,039	227,356	10,953	20,168	12,304	1,372	14,886	26,572

See explanatory information and SOURCE at end of table.

Appendix table 4-5. Master's degrees, by detailed field and race/ethnicity of recipient: 1996

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[1] Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens) who have been admitted for permanent residency.

[2] Nonresident aliens include foreign citizens on temporary visas only.

[3] In this table, "Physical science" includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry.

[4] Non-S&E refers to non-science and non-engineering.

NOTE: Racial/ethnic data were collected by broad fields of study only until 1994; therefore, data could not be adjusted to the exact field taxonomies used by NSF. Because data were collected by detailed field in 1996 (as well as in 1995) the data in this table do correspond to the field taxonomies used by NSF and therefore will match other tables in this report showing master's degrees by sex, but will not match data shown in other tables in this report showing master's degrees by race/ethnicity over time. The largest effect is in the social sciences: NSF excludes history and includes public administration and public policy, linguistics, gerontology, and agricultural economics in this category.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 4-6. Percentage distribution of master's degrees in science and engineering to U.S. citizens and permanent residents, by field and by race/ethnicity of recipient: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	U.S. citizens and permanent residents, total[3]							
Total, all fields	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total science and engineering	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Physical sciences[1]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mathematical sciences	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Computer science	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Biological sciences	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agricultural sciences	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Social sciences	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Psychology	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Engineering	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Non-S&E[2]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	White, non-Hispanics							
Total, all fields	82.6	81.6	82.3	81.7	81.3	80.0	79.1	78.4
Total science and engineering	79.6	79.5	79.8	78.5	78.3	77.8	76.6	76.0
Physical sciences[1]	84.3	84.0	82.8	80.4	81.8	80.3	79.9	80.7
Mathematical sciences	82.8	81.9	80.4	80.4	79.9	79.0	77.2	75.3
Computer science	68.8	68.5	71.3	69.3	69.9	65.8	65.2	64.8
Biological sciences	85.2	84.1	82.6	80.9	79.6	80.6	79.0	78.0
Agricultural sciences	92.0	90.0	89.9	88.1	87.6	82.9	83.9	86.8
Social sciences	82.5	81.5	81.9	81.9	80.1	79.8	78.1	77.5
Psychology	84.3	83.9	84.1	82.6	82.4	83.6	82.0	80.0
Engineering	75.5	76.8	76.6	74.5	75.1	74.8	73.0	72.3
Non-S&E[2]	83.3	82.1	82.8	82.5	82.0	80.5	79.7	78.9
	Asians/Pacific Islanders							
Total, all fields	3.6	3.4	3.7	3.9	4.0	4.3	4.5	4.8
Total science and engineering	7.4	7.3	7.7	8.2	7.9	8.3	8.5	8.7
Physical sciences[1]	6.2	5.8	6.6	7.7	6.6	7.2	7.2	7.4
Mathematical sciences	7.3	6.9	7.3	6.9	6.7	7.7	7.9	7.9
Computer science	12.9	13.3	15.6	17.4	17.3	18.9	19.2	19.5
Biological sciences	5.2	5.4	5.7	6.6	7.7	7.7	9.2	9.9
Agricultural sciences	2.2	2.2	2.5	2.2	2.3	3.0	3.3	3.3
Social sciences	3.7	3.9	3.7	3.8	3.9	4.1	3.9	4.2
Psychology	1.6	1.8	1.8	1.8	1.8	2.3	2.2	2.5
Engineering	11.7	11.1	12.2	13.0	12.2	12.6	13.6	14.0
Non-S&E[2]	2.7	2.5	2.8	2.9	3.1	3.3	3.6	3.9

See explanatory information and SOURCE at end of table.

Appendix table 4-6. Percentage distribution of master's degrees in science and engineering to U.S. citizens and permanent residents, by field and by race/ethnicity of recipient: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Black, non-Hispanics							
Total, all fields	4.8	5.0	5.3	5.5	5.8	6.1	6.5	6.8
Total science and engineering	3.0	3.3	3.7	4.0	4.2	4.4	5.0	5.2
Physical sciences[1]	1.7	2.1	1.9	2.6	2.8	3.2	3.7	2.8
Mathematical sciences	2.4	2.6	3.9	2.6	3.3	3.6	5.0	5.1
Computer science	2.8	3.3	4.4	5.0	4.8	5.6	5.4	6.0
Biological sciences	2.9	2.6	3.4	3.7	3.4	3.3	3.6	3.8
Agricultural sciences	1.8	1.4	2.5	2.5	2.7	2.9	2.5	2.6
Social sciences	4.2	4.5	5.5	5.7	5.9	6.0	6.8	6.9
Psychology	4.7	5.3	4.8	5.3	5.1	5.3	6.4	7.1
Engineering	2.1	2.3	2.4	2.7	3.0	3.0	3.5	3.6
Non-S&E[2]	5.3	5.4	5.6	5.9	6.2	6.5	6.9	7.2
	Hispanics							
Total, all fields	2.9	2.9	3.2	3.3	3.5	3.8	4.0	4.3
Total science and engineering	2.9	2.8	3.1	3.1	3.4	3.9	3.9	4.0
Physical sciences[1]	2.1	2.4	2.5	2.4	3.0	2.9	3.2	3.1
Mathematical sciences	1.4	1.9	3.3	2.3	2.6	2.5	2.5	3.1
Computer science	2.1	1.7	2.0	2.3	2.5	2.6	3.1	2.7
Biological sciences	2.9	2.9	3.4	3.6	3.8	3.2	3.7	3.7
Agricultural sciences	2.4	2.2	2.4	2.1	2.6	6.7	3.3	2.8
Social sciences	3.2	3.3	3.5	3.4	3.8	4.1	4.0	4.3
Psychology	4.3	4.1	4.1	4.2	4.3	4.7	4.8	5.3
Engineering	2.8	2.7	2.8	2.9	3.1	3.7	3.8	4.0
Non-S&E[2]	2.9	2.9	3.2	3.3	3.5	3.8	4.0	4.3
	American Indians/Alaskan Natives							
Total, all fields	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5
Total science and engineering	0.4	0.3	0.4	0.3	0.4	0.4	0.4	0.4
Physical sciences[1]	0.4	0.2	0.3	0.5	0.3	0.4	0.5	0.2
Mathematical sciences	0.2	0.2	0.3	0.1	0.3	0.2	0.4	0.2
Computer science	0.6	0.1	0.2	0.2	0.2	0.3	0.2	0.4
Biological sciences	0.4	0.3	0.3	0.3	0.7	0.4	0.4	0.3
Agricultural sciences	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.4
Social sciences	0.6	0.6	0.5	0.5	0.6	0.6	0.7	0.7
Psychology	0.4	0.4	0.5	0.4	0.5	0.5	0.6	0.6
Engineering	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.3
Non-S&E[2]	0.4	0.4	0.4	0.4	0.4	0.5	0.4	0.5

See explanatory information and SOURCE at end of table

Appendix table 4-6. Percentage distribution of master's degrees in science and engineering to U.S. citizens and permanent residents, by field and by race/ethnicity of recipient: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	U.S. citizens and permanent residents, unknown race/ethnicity							
Total, all fields	5.7	6.7	5.2	5.2	5.0	5.3	5.4	5.3
Total science and engineering	6.7	6.7	5.3	5.9	5.8	5.3	5.6	5.7
Physical sciences[1]	5.2	5.4	5.7	6.4	5.4	5.9	5.5	5.7
Mathematical sciences	5.9	6.4	4.7	7.7	7.2	7.0	7.1	8.3
Computer science	12.9	13.1	6.6	5.8	5.2	6.8	6.9	6.7
Biological sciences	3.4	4.7	4.6	4.9	4.8	4.7	4.1	4.3
Agricultural sciences	1.2	3.9	2.3	4.9	4.4	4.1	6.6	4.1
Social sciences	5.7	6.1	5.0	4.7	5.7	5.5	6.5	6.4
Psychology	4.8	4.5	4.7	5.7	5.8	3.6	3.9	4.6
Engineering	7.7	6.9	5.7	6.7	6.3	5.5	5.9	5.8
Non-S&E[2]	5.4	6.7	5.2	5.0	4.8	5.4	5.3	5.2

[1] In this table, "Physical science" includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry.

[2] Non-S&E refers to non-science and non-engineering.

[3] Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 4-7. Master's degrees awarded to women, by field and by race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Total, all recipients							
Total, all fields	161,651	170,922	181,603	191,908	201,220	212,246	220,230	228,572
Total science and engineering	22,609	23,804	25,080	26,416	28,313	30,619	32,628	33,802
Physical sciences[1]	1,523	1,430	1,457	1,457	1,562	1,658	1,735	1,886
Mathematical sciences	1,370	1,476	1,486	1,562	1,616	1,567	1,641	1,569
Computer science	2,626	2,675	2,761	2,646	2,756	2,694	2,702	2,723
Biological sciences	2,462	2,500	2,491	2,500	2,433	2,742	2,807	3,282
Agricultural sciences	858	954	944	1,130	1,270	1,395	1,481	1,708
Social sciences	4,851	5,218	5,776	6,180	6,605	7,285	7,520	7,848
Psychology	5,838	6,283	6,808	7,276	7,978	8,857	10,111	10,034
Engineering	3,081	3,268	3,357	3,665	4,093	4,421	4,631	4,752
Non-S&E[2]	139,042	147,118	156,523	165,492	172,907	181,627	187,602	194,770
	U.S. citizens and permanent residents, total[3]							
Total, all fields	152,150	160,019	169,142	178,493	185,932	195,881	202,633	210,372
Total science and engineering	19,509	20,168	21,112	22,114	23,528	25,501	27,326	28,183
Physical sciences[1]	1,239	1,094	1,023	1,030	1,078	1,124	1,202	1,338
Mathematical sciences	1,026	1,090	1,110	1,162	1,229	1,210	1,269	1,198
Computer science	2,032	2,045	2,086	1,857	1,788	1,730	1,727	1,739
Biological sciences	2,183	2,150	2,112	2,090	1,990	2,271	2,379	2,760
Agricultural sciences	702	765	765	927	1,062	1,131	1,246	1,448
Social sciences	4,107	4,418	4,911	5,218	5,627	6,199	6,431	6,621
Psychology	5,678	6,034	6,595	7,069	7,757	8,626	9,775	9,719
Engineering	2,542	2,572	2,510	2,761	2,997	3,210	3,297	3,360
Non-S&E[2]	132,641	139,851	148,030	156,379	162,404	170,380	175,307	182,189
	White, non-Hispanics							
Total, all fields	126,280	130,799	139,607	146,265	151,951	157,155	160,782	165,154
Total science and engineering	15,830	16,200	16,879	17,536	18,482	19,865	20,953	21,200
Physical sciences[1]	1,016	883	830	833	849	893	923	1,038
Mathematical sciences	859	894	899	947	1,022	959	988	901
Computer science	1,356	1,377	1,377	1,171	1,138	977	974	943
Biological sciences	1,849	1,790	1,724	1,685	1,551	1,810	1,849	2,122
Agricultural sciences	643	682	684	825	925	921	1,024	1,239
Social sciences	3,366	3,579	3,919	4,247	4,470	4,878	4,950	5,049
Psychology	4,783	5,058	5,553	5,851	6,384	7,190	8,005	7,718
Engineering	1,958	1,937	1,893	1,977	2,143	2,237	2,240	2,190
Non-S&E[2]	110,450	114,599	122,728	128,729	133,469	137,290	139,829	143,954

See explanatory information and SOURCE at end of table.

Appendix table 4-7. Master's degrees awarded to women, by field and by race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Asians/Pacific Islanders							
Total, all fields	4,257	4,324	4,850	5,470	6,044	6,768	7,521	8,404
Total science and engineering	1,161	1,256	1,351	1,487	1,609	1,861	1,950	2,216
Physical sciences[1]	99	94	86	89	99	102	101	136
Mathematical sciences	61	78	81	98	76	107	105	103
Computer science	329	332	387	400	396	443	454	462
Biological sciences	118	128	127	139	169	181	208	282
Agricultural sciences	20	21	23	21	29	47	53	61
Social sciences	154	180	201	212	258	274	261	299
Psychology	87	117	123	121	141	196	219	252
Engineering	293	306	323	407	441	511	549	621
Non-S&E[2]	3,096	3,068	3,499	3,983	4,435	4,907	5,571	6,188
	Black, non-Hispanics							
Total, all fields	8,491	9,304	10,238	11,626	12,425	13,929	15,318	16,590
Total science and engineering	774	897	1,062	1,190	1,301	1,473	1,805	1,953
Physical sciences[1]	22	26	30	32	47	53	61	57
Mathematical sciences	27	33	47	33	50	47	87	73
Computer science	79	92	133	141	115	160	148	174
Biological sciences	65	59	79	88	88	94	112	122
Agricultural sciences	12	10	17	23	30	32	39	39
Social sciences	201	239	332	345	385	445	512	574
Psychology	275	338	325	394	429	475	645	704
Engineering	93	100	99	134	157	167	201	210
Non-S&E[2]	7,717	8,407	9,176	10,436	11,124	12,456	13,513	14,637
	Hispanics							
Total, all fields	4,536	4,782	5,560	5,875	6,496	7,694	8,180	9,322
Total science and engineering	615	628	744	740	837	1,087	1,127	1,252
Physical sciences[1]	27	35	23	29	38	[illegible]	41	47
Mathematical sciences	13	18	33	19	28	31	22	34
Computer science	44	25	44	51	58	49	47	48
Biological sciences	64	59	82	77	75	73	92	106
Agricultural sciences	14	19	18	18	34	79	40	40
Social sciences	137	163	187	178	192	267	270	276
Psychology	242	236	267	288	311	417	482	533
Engineering	74	73	90	80	101	137	133	168
Non-S&E[2]	3,921	4,154	4,816	5,135	5,659	6,607	7,053	8,070

See explanatory information and SOURCE at end of table.

Appendix table 4-7. Master's degrees awarded to women, by field and by race/ethnicity: 1989–96

Page 3 of 3

Field	1989	1990	1991	1992	1993	1994	1995	1996
	American Indians/Alaskan Natives							
Total, all fields	537	526	570	637	664	852	771	878
Total science and engineering	67	85	91	90	124	112	148	150
Physical sciences[1]	19	16	25	19	31	18	31	28
Mathematical sciences	6	3	5	4	4	3	8	4
Computer science	1	2	2	3	4	1	6	1
Biological sciences	3	2	4	5	3	6	5	7
Agricultural sciences	9	6	9	5	17	5	9	8
Social sciences	0	3	5	2	3	3	3	8
Psychology	23	37	30	39	33	39	59	59
Engineering	21	24	30	25	47	43	55	58
Non-S&E[2]	4	8	6	7	13	12	3	5
	U.S. citizens and permanent residents, unknown race/ethnicity							
Total, all fields	7,982	10,199	8,226	8,530	8,228	9,371	9,913	9,874
Total science and engineering	1,062	1,102	985	1,071	1,175	1,103	1,343	1,412
Physical sciences[1]	69	53	49	43	41	39	68	56
Mathematical sciences	65	65	48	62	49	65	61	86
Computer science	221	217	141	89	78	95	99	105
Biological sciences	78	108	91	96	90	108	109	120
Agricultural sciences	13	30	18	38	41	49	87	61
Social sciences	226	220	242	197	289	296	379	364
Psychology	270	261	297	390	445	305	369	454
Engineering	120	148	99	156	142	146	171	166
Non-S&E[2]	6,920	9,097	7,241	7,459	7,053	8,268	8,570	8,462
	Nonresident aliens[4]							
Total, all fields	9,501	10,903	12,461	13,415	15,288	16,365	17,597	18,200
Total science and engineering	3,100	3,636	3,968	4,302	4,785	5,118	5,302	5,619
Physical sciences[1]	284	336	434	427	484	534	533	548
Mathematical sciences	344	386	376	400	387	357	372	371
Computer science	594	630	675	789	968	964	975	984
Biological sciences	279	350	379	410	443	471	428	522
Agricultural sciences	156	189	179	203	208	264	235	260
Social sciences	744	800	865	962	978	1,086	1,089	1,227
Psychology	160	249	213	207	221	231	336	315
Engineering	539	696	847	904	1,096	1,211	1,334	1,392
Non-S&E[2]	6,401	7,267	8,493	9,113	10,503	11,247	12,295	12,581

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[1] In this table, "Physical science" includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry.

[2] Non-S&E refers to non-science and non-engineering.

[3] Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

[4] Nonresident aliens include foreign citizens on temporary visas only. No racial/ethnic data are collected for this group.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation/Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 4-8. Master's degrees awarded to men, by field and by race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Total, all recipients							
Total, all fields	149,399	154,025	156,895	162,299	169,753	176,762	179,198	180,360
Total science and engineering	47,724	48,424	47,748	49,768	53,102	55,461	55,803	54,928
Physical sciences[1]	4,180	3,981	3,825	3,895	3,803	4,030	4,000	3,968
Mathematical sciences	2,060	2,208	2,146	2,457	2,468	2,541	2,549	2,468
Computer science	6,773	6,968	6,563	6,884	7,411	7,727	7,630	7,500
Biological sciences	2,491	2,393	2,315	2,316	2,365	2,475	2,616	2,925
Agricultural sciences	1,746	1,708	1,681	1,928	2,029	2,040	2,131	2,324
Social sciences	7,006	7,424	7,574	7,939	8,419	8,945	8,981	8,910
Psychology	2,814	3,025	2,994	3,004	3,042	3,417	3,910	3,828
Engineering	20,654	20,717	20,650	21,345	23,565	24,286	23,986	23,005
Non-S&E[2]	101,675	105,601	109,147	112,531	116,651	121,301	123,395	125,432
	U.S. citizens and permanent residents, total[3]							
Total, all fields	126,777	130,326	131,745	136,062	140,932	146,621	148,039	150,310
Total science and engineering	35,681	35,722	34,667	36,063	37,737	39,700	39,784	39,968
Physical sciences[1]	3,226	2,953	2,755	2,784	2,685	2,794	2,778	2,781
Mathematical sciences	1,428	1,559	1,463	1,745	1,717	1,803	1,765	1,758
Computer science	4,925	5,035	4,419	4,504	4,600	4,779	4,725	4,613
Biological sciences	2,134	2,014	1,945	1,931	1,959	2,013	2,164	2,470
Agricultural sciences	1,272	1,258	1,257	1,429	1,543	1,596	1,702	1,923
Social sciences	5,535	5,840	5,961	6,411	6,760	7,288	7,264	7,317
Psychology	2,715	2,889	2,890	2,909	2,931	3,287	3,762	3,704
Engineering	14,446	14,174	13,977	14,350	15,542	16,140	15,624	15,402
Non-S&E[2]	91,096	94,604	97,078	99,999	103,195	106,921	108,255	110,342
	White, non-Hispanics							
Total, all fields	104,042	106,075	107,917	110,797	113,717	116,758	116,655	117,559
Total science and engineering	28,115	28,250	27,634	28,113	29,493	30,846	30,464	30,591
Physical sciences[1]	2,750	2,518	2,299	2,234	2,229	2,252	2,256	2,288
Mathematical sciences	1,173	1,275	1,169	1,389	1,332	1,420	1,354	1,326
Computer science	3,430	3,474	3,260	3,236	3,326	3,309	3,231	3,170
Biological sciences	1,830	1,711	1,629	1,566	1,593	1,643	1,740	1,958
Agricultural sciences	1,174	1,138	1,134	1,250	1,357	1,340	1,450	1,687
Social sciences	4,592	4,781	4,981	5,276	5,453	5,880	5,750	5,758
Psychology	2,292	2,431	2,420	2,387	2,426	2,770	3,102	3,021
Engineering	10,874	10,922	10,742	10,775	11,777	12,232	11,581	11,383
Non-S&E[2]	75,927	77,825	80,283	82,684	84,224	85,912	86,191	86,968

See explanatory information and SOURCE at end of table.

Appendix table 4-8. Master's degrees awarded to men, by field and by race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	Asians/Pacific Islanders							
Total, all fields	5,917	5,670	6,220	6,823	7,125	7,791	8,385	8,877
Total science and engineering	2,939	2,799	2,959	3,276	3,237	3,561	3,733	3,726
Physical sciences[1]	179	140	165	206	150	182	187	168
Mathematical sciences	117	106	108	103	121	126	134	132
Computer science	565	609	627	705	710	785	785	775
Biological sciences	105	97	104	125	136	151	209	237
Agricultural sciences	24	24	27	30	32	35	44	49
Social sciences	206	224	196	229	219	276	272	287
Psychology	44	42	47	62	50	74	79	78
Engineering	1,699	1,557	1,685	1,816	1,819	1,932	2,023	2,000
Non-S&E[2]	2,978	2,871	3,261	3,547	3,888	4,230	4,652	5,151
	Black, non-Hispanics							
Total, all fields	4,964	5,169	5,619	5,794	6,472	7,007	7,636	7,998
Total science and engineering	878	950	1,028	1,166	1,253	1,376	1,534	1,565
Physical sciences[1]	56	61	43	66	58	74	86	59
Mathematical sciences	32	37	53	44	48	62	64	78
Computer science	119	140	150	175	193	205	199	205
Biological sciences	59	51	58	61	47	48	50	76
Agricultural sciences	24	18	34	36	40	46	35	49
Social sciences	206	223	262	315	345	358	418	391
Psychology	120	133	129	137	115	161	218	243
Engineering	262	287	299	332	407	422	464	464
Non-S&E[2]	4,086	4,219	4,591	4,628	5,219	5,631	6,102	6,433
	Hispanics							
Total, all fields	3,597	3,713	4,124	4,381	4,875	5,483	5,725	6,072
Total science and engineering	970	959	992	1,066	1,255	1,427	1,458	1,478
Physical sciences[1]	65	63	73	64	76	80	88	80
Mathematical sciences	21	33	52	47	50	44	53	57
Computer science	100	93	84	98	104	120	151	125
Biological sciences	62	61	54	69	76	65	75	85
Agricultural sciences	34	25	31	31	35	105	56	55
Social sciences	176	178	196	218	282	290	283	320
Psychology	118	133	124	131	152	141	174	176
Engineering	394	373	378	408	480	582	578	580
Non-S&E[2]	2,627	2,754	3,132	3,315	3,620	4,056	4,267	4,594

See explanatory information and SOURCE at end of table.

Appendix table 4-8. Master's degrees awarded to men, by field and by race/ethnicity: 1989–96

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Field	1989	1990	1991	1992	1993	1994	1995	1996
	American Indians/Alaskan Natives							
Total, all fields	478	439	464	501	556	654	623	665
Total science and engineering	142	96	109	108	129	161	151	154
Physical sciences[1]	12	6	8	14	8	13	11	6
Mathematical sciences	5	4	7	1	4	5	5	5
Computer science	36	5	10	10	11	12	11	17
Biological sciences	8	8	4	7	9	12	11	9
Agricultural sciences	6	5	3	5	5	8	10	6
Social sciences	34	28	24	23	45	44	33	38
Psychology	12	13	19	13	10	19	30	22
Engineering	29	27	34	35	37	48	40	51
Non-S&E[2]	336	343	355	393	427	493	472	511
	U.S. citizens and permanent residents, unknown race/ethnicity							
Total, all fields	7,779	9,260	7,401	7,766	8,187	8,928	9,015	9,139
Total science and engineering	2,637	2,668	1,945	2,334	2,370	2,329	2,444	2,454
Physical sciences[1]	164	165	167	200	164	193	150	180
Mathematical sciences	80	104	74	161	162	146	155	160
Computer science	675	714	288	280	256	348	348	321
Biological sciences	70	86	96	103	98	94	79	105
Agricultural sciences	10	48	28	77	74	62	107	77
Social sciences	321	406	302	350	416	440	508	523
Psychology	129	137	151	179	178	122	159	164
Engineering	1,188	1,008	839	984	1,022	924	938	924
Non-S&E[2]	5,142	6,592	5,456	5,432	5,817	6,599	6,571	6,685
	Nonresident aliens[4]							
Total, all fields	22,622	23,699	25,150	26,237	28,821	30,141	31,159	30,050
Total science and engineering	12,043	12,702	13,081	13,705	15,365	15,761	16,019	14,960
Physical sciences[1]	954	1,028	1,070	1,111	1,118	1,236	1,222	1,187
Mathematical sciences	632	649	683	712	751	738	784	710
Computer science	1,848	1,933	2,144	2,380	2,811	2,948	2,905	2,887
Biological sciences	357	379	370	385	406	462	452	455
Agricultural sciences	474	450	424	499	486	444	429	401
Social sciences	1,471	1,584	1,613	1,528	1,659	1,657	1,717	1,593
Psychology	99	136	104	95	111	130	148	124
Engineering	6,208	6,543	6,673	6,995	8,023	8,146	8,362	7,603
Non-S&E[2]	10,579	10,997	12,069	12,532	13,456	14,380	15,140	15,090

[1] In this table, "Physical science" includes earth, atmospheric, and ocean sciences, as well as physics, astronomy, and chemistry.

[2] Non-S&E refers to non-science and non-engineering.

[3] Racial/ethnic categories are as designated on the survey form. These categories include U.S. citizens and foreign citizens on permanent visas (i.e., resident aliens who have been admitted for permanent residency).

[4] Nonresident aliens include foreign citizens on temporary visas only. No racial/ethnic data are collected for this group.

NOTE: Data on race/ethnicity of degree recipients were collected on broad fields of study only until 1994; therefore, these trend data could not be adjusted to the exact field taxonomies used by NSF.

SOURCE: Tabulations by National Science Foundation Division of Science Resources Studies; data from U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System, Completions Survey.

Appendix table 4-9. Doctoral degrees awarded, by major field group: 1966–97

Year	Total, all fields	Science & engineering fields									Non-science and engineering
		Total, science and engineering	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Biological/agricultural sciences	Psychology	Social sciences	
1966	17,949	11,570	2,301	2,655	404	769	19	2,711	1,139	1,591	6,379
1967	20,403	13,109	2,607	3,085	415	830	38	2,966	1,295	1,911	7,294
1968	22,937	14,645	2,864	3,239	434	971	36	3,511	1,464	2,162	8,292
1969	25,743	16,288	3,276	3,428	496	1,070	64	3,815	1,766	2,437	9,455
1970	29,498	18,052	3,446	3,893	498	1,225	107	4,165	1,890	2,935	11,446
1971	31,867	19,381	3,514	3,949	536	1,238	128	4,557	2,145	3,442	12,486
1972	33,041	19,342	3,509	3,653	598	1,281	167	4,454	2,279	3,568	13,699
1973	33,755	19,373	3,374	3,444	624	1,232	196	4,503	2,458	3,737	14,382
1974	33,047	18,714	3,161	3,136	615	1,211	198	4,304	2,598	3,689	14,333
1975	32,952	18,799	3,011	3,076	625	1,147	213	4,402	2,751	3,787	14,153
1976	32,946	18,472	2,838	2,861	641	1,003	244	4,361	2,883	3,885	14,474
1977	31,716	18,008	2,648	2,721	689	933	216	4,266	2,990	3,730	13,708
1978	30,875	17,653	2,425	2,611	621	838	196	4,369	3,055	3,613	13,222
1979	31,239	17,872	2,494	2,674	642	769	210	4,501	3,091	3,491	13,367
1980	31,020	17,775	2,479	2,521	628	744	218	4,715	3,098	3,372	13,245
1981	31,356	18,257	2,528	2,627	583	728	232	4,785	3,358	3,416	13,099
1982	31,111	18,275	2,646	2,694	657	720	220	4,844	3,159	3,335	12,836
1983	31,281	18,635	2,781	2,814	624	701	286	4,756	3,347	3,326	12,646
1984	31,337	18,748	2,913	2,851	608	698	295	4,877	3,257	3,249	12,589
1985	31,297	18,935	3,166	2,934	599	688	310	4,903	3,118	3,217	12,362
1986	31,902	19,437	3,376	3,120	559	729	399	4,804	3,126	3,324	12,465
1987	32,370	19,894	3,712	3,238	602	740	450	4,815	3,173	3,164	12,476
1988	33,500	20,932	4,187	3,350	695	749	515	5,126	3,074	3,236	12,568
1989	34,327	21,732	4,543	3,261	723	859	612	5,202	3,208	3,324	12,595
1990	36,067	22,868	4,894	3,524	738	892	705	5,502	3,281	3,332	13,199
1991	37,534	24,023	5,214	3,626	815	1,039	800	5,723	3,250	3,556	13,511
1992	38,890	24,675	5,438	3,781	794	1,058	869	5,862	3,263	3,610	14,215
1993	39,801	25,443	5,698	3,699	771	1,146	880	6,060	3,420	3,769	14,358
1994	41,034	26,205	5,822	3,977	824	1,118	903	6,281	3,379	3,901	14,829
1995	41,743	26,535	6,008	3,841	780	1,190	997	6,412	3,429	3,878	15,208
1996	42,415	27,230	6,305	3,838	794	1,122	921	6,760	3,491	3,999	15,185
1997	42,705	26,847	6,052	3,711	862	1,112	889	6,683	3,489	4,049	15,858

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 4-10. Doctoral degrees awarded to women, by major field group: 1966–97

Year	Total, all fields	Science & engineering fields									Non-science and engineering	Index of dissimilarity[1]
		Total, science and engineering	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Biological/agricultural sciences	Psychology	Social sciences		
1966	2,086	924	8	120	12	47	0	325	245	167	1,162	26.1
1967	2,442	1,096	9	155	6	48	1	401	265	212	1,346	25.8
1968	2,932	1,317	12	175	11	47	0	483	333	256	1,615	25.2
1969	3,388	1,507	10	186	20	56	2	538	416	281	1,881	25.4
1970	3,971	1,648	16	227	15	77	2	538	444	331	2,323	24.6
1971	4,596	1,996	16	231	13	96	3	660	530	450	2,600	22.4
1972	5,287	2,151	22	249	22	96	12	673	609	480	3,136	22.6
1973	6,085	2,520	46	235	27	119	15	789	717	586	3,565	20.7
1974	6,453	2,671	34	234	34	115	9	780	801	673	3,782	20.0
1975	7,201	2,929	52	264	30	109	14	849	873	752	4,272	20.4
1976	7,684	3,097	55	244	62	113	23	853	946	824	4,587	19.5
1977	7,858	3,233	74	244	59	122	19	843	1,088	798	4,625	20.3
1978	8,322	3,454	53	247	61	120	15	958	1,127	877	4,868	19.4
1979	8,937	3,744	62	292	58	119	27	1,031	1,260	895	5,193	19.5
1980	9,408	3,961	90	322	64	95	21	1,150	1,311	908	5,447	19.1
1981	9,892	4,201	99	309	56	112	26	1,221	1,473	905	5,691	19.9
1982	10,093	4,350	124	357	103	96	20	1,292	1,438	920	5,743	19.7
1983	10,533	4,715	124	373	95	113	36	1,366	1,597	1,011	5,818	19.3
1984	10,699	4,792	151	399	106	115	37	1,348	1,631	1,005	5,907	19.9
1985	10,744	4,891	198	467	108	106	33	1,409	1,541	1,029	5,853	19.4
1986	11,307	5,167	225	510	95	121	48	1,452	1,599	1,117	6,140	19.6
1987	11,432	5,312	242	528	112	125	65	1,531	1,698	1,011	6,120	20.0
1988	11,819	5,662	286	567	135	121	56	1,691	1,681	1,125	6,157	19.6
1989	12,513	6,109	375	619	148	155	108	1,769	1,800	1,135	6,404	19.5
1990	13,106	6,370	415	661	141	158	110	1,861	1,913	1,111	6,736	20.3
1991	13,873	6,932	467	679	179	199	117	1,982	1,996	1,313	6,941	19.8
1992	14,436	7,080	506	770	188	205	120	2,064	1,928	1,299	7,356	19.4
1993	15,122	7,652	522	780	160	264	138	2,278	2,088	1,422	7,470	18.5
1994	15,819	7,920	635	828	183	236	137	2,357	2,101	1,443	7,899	18.8
1995	16,414	8,288	696	878	170	265	186	2,446	2,180	1,467	8,126	18.1
1996	16,945	8,646	776	842	172	231	139	2,697	2,328	1,461	8,299	18.7
1997	17,322	8,796	747	833	204	260	144	2,718	2,324	1,566	8,526	17.4

[1] The dissimilarity index is a measure of the percentage of women doctorate recipients who would need to switch fields of study to match the percentage distribution of men receiving doctorates. The index is calculated as the sum of the absolute difference between the percentage of women doctorate recipients earning degrees in each field and the percentage of men doctorate recipients earning degrees in each field divided by 2.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 4-11. Women as a percentage of all doctorate recipients, by major field group: 1966–97

Year	Total all fields	Science & engineering fields									Non-science and engineering
		Total science and engineering	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Biological/agricultural sciences	Psychology	Social sciences	
1966	11.6	8.0	0.3	4.5	3.0	6.1	0.0	12.0	21.5	10.5	18.2
1967	12.0	8.4	0.3	5.0	1.4	5.8	2.6	13.5	20.5	11.1	18.5
1968	12.8	9.0	0.4	5.4	2.5	4.8	0.0	13.8	22.7	11.8	19.5
1969	13.2	9.3	0.3	5.4	4.0	5.2	3.1	14.1	23.6	11.5	19.9
1970	13.5	9.1	0.5	5.8	3.0	6.3	1.9	12.9	23.5	11.3	20.3
1971	14.4	10.3	0.5	5.8	2.4	7.8	2.3	14.5	24.7	13.1	20.8
1972	16.0	11.1	0.6	6.8	3.7	7.5	7.2	15.1	26.7	13.5	22.9
1973	18.0	13.0	1.4	6.8	4.3	9.7	7.7	17.5	29.2	15.7	24.8
1974	19.5	14.3	1.1	7.5	5.5	9.5	4.5	18.1	30.8	18.2	26.4
1975	21.9	15.6	1.7	8.6	4.8	9.5	6.6	19.3	31.7	19.9	30.2
1976	23.3	16.8	1.9	8.5	9.7	11.3	9.4	19.6	32.8	21.2	31.7
1977	24.8	18.0	2.8	9.0	8.6	13.1	8.8	19.8	36.4	21.4	33.7
1978	27.0	19.6	2.2	9.5	9.8	14.3	7.7	21.9	36.9	24.3	36.8
1979	28.6	20.9	2.5	10.9	9.0	15.5	12.9	22.9	40.8	25.6	38.8
1980	30.3	22.3	3.6	12.8	10.2	12.8	9.6	24.4	42.3	26.9	41.1
1981	31.5	23.0	3.9	11.8	9.6	15.4	11.2	25.5	43.9	26.5	43.4
1982	32.4	23.8	4.7	13.3	15.7	13.3	9.1	26.7	45.5	27.6	44.7
1983	33.7	25.3	4.5	13.3	15.2	16.1	12.6	28.7	47.7	30.4	46.0
1984	34.1	25.6	5.2	14.0	17.4	16.5	12.5	27.6	50.1	30.9	46.9
1985	34.3	25.8	6.3	15.9	18.0	15.4	10.6	28.7	49.4	32.0	47.3
1986	35.4	26.6	6.7	16.3	17.0	16.6	12.0	30.2	51.2	33.6	49.3
1987	35.3	26.7	6.5	16.3	18.6	16.9	14.4	31.8	53.5	32.0	49.1
1988	35.3	27.0	6.8	16.9	19.4	16.2	10.9	33.0	54.7	34.8	49.0
1989	36.5	28.1	8.3	19.0	20.5	18.0	17.6	34.0	56.1	34.1	50.8
1990	36.3	27.9	8.5	18.8	19.1	17.7	15.6	33.8	58.3	33.3	51.0
1991	37.0	28.9	9.0	18.7	22.0	19.2	14.6	34.6	61.4	36.9	51.4
1992	37.1	28.7	9.3	20.4	23.7	19.4	13.8	35.2	59.1	36.0	51.7
1993	38.0	30.1	9.2	21.1	20.8	23.0	15.7	37.6	61.1	37.7	52.0
1994	38.6	30.2	10.9	20.8	22.2	21.1	15.2	37.5	62.2	37.0	53.3
1995	39.3	31.2	11.6	22.9	21.8	22.3	16.7	38.1	63.6	37.8	53.4
1996	40.0	31.8	12.3	21.9	21.7	20.6	15.1	39.9	66.7	36.5	54.7
1997	40.6	32.8	12.3	22.4	23.7	[illegible]	16.2	40.7	66.6	38.7	53.8

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates

Appendix table 4-12. Doctoral degrees earned by U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Agricultural sciences	Biological sciences	Psychology	Social sciences	Non-science and engineering	Index of dissimilarity
						U.S. citizens and permanent residents, total							
1975	28,796	15,641	2,137	2,553	527	923	0	633	3,100	2,607	3,161	13,155	NA
1976	28,763	15,360	1,949	2,392	538	803	0	536	3,160	2,768	3,214	13,403	NA
1977	27,487	14,881	1,799	2,262	580	744	25	514	3,071	2,821	3,065	12,606	NA
1978	26,635	14,551	1,586	2,161	540	698	90	573	3,134	2,858	2,943	12,084	NA
1979	26,784	14,711	1,617	2,205	564	603	175	573	3,262	2,895	2,817	12,073	NA
1980	26,512	14,577	1,554	2,035	538	582	169	605	3,430	2,909	2,755	11,935	NA
1981	26,341	14,654	1,471	2,103	488	525	188	629	3,420	3,158	2,672	11,687	NA
1982	25,622	14,339	1,465	2,110	557	499	155	670	3,434	2,923	2,526	11,283	NA
1983	25,634	14,518	1,482	2,194	503	457	207	685	3,324	3,108	2,558	11,116	NA
1984	25,252	14,294	1,513	2,194	495	443	195	660	3,399	2,987	2,408	10,958	NA
1985	24,694	14,065	1,594	2,187	465	418	213	726	3,256	2,864	2,342	10,629	NA
1986	24,519	14,016	1,726	2,166	427	402	249	626	3,241	2,832	2,347	10,503	NA
1987	24,562	14,055	1,913	2,242	435	396	275	632	3,141	2,806	2,215	10,507	NA
1988	24,912	14,498	2,146	2,258	520	386	326	610	3,322	2,729	2,201	10,414	NA
1989	25,027	14,592	2,229	2,131	547	428	[illegible]	651	3,300	2,737	2,173	10,435	NA
1990	26,603	15,364	2,346	2,341	535	422	403	687	3,380	2,992	2,258	11,239	NA
1991	27,430	15,914	2,474	2,300	618	518	451	620	3,525	3,018	2,390	11,516	NA
1992	27,990	15,942	2,520	2,357	541	507	489	573	3,568	2,986	2,401	12,048	NA
1993	28,708	16,573	2,697	2,330	504	590	509	506	3,752	3,161	2,524	12,135	NA
1994	30,894	18,187	3,053	2,789	613	657	543	616	4,088	3,136	2,692	12,707	NA
1995	32,059	18,996	3,342	2,841	594	771	616	598	4,329	3,184	2,721	13,063	NA
1996	31,506	18,628	3,383	2,568	558	646	513	576	4,365	3,225	2,793	12,878	NA
1997	30,601	18,005	3,281	2,473	587	616	506	546	4,203	2,976	2,817	12,596	NA
						White, non-Hispanics							
1975	24,962	13,526	1,651	2,180	475	796	0	561	2,750	2,362	2,751	11,436	NA
1976	24,943	13,352	1,524	2,032	[illegible]	698	0	487	2,789	2,541	2,792	11,591	NA
1977	23,654	12,875	1,429	1,883	517	649	22	458	2,740	2,541	2,636	10,779	NA
1978	22,342	12,204	1,169	1,750	466	563	77	486	2,702	2,524	2,467	10,138	NA
1979	22,396	12,314	1,157	1,787	500	505	153	503	2,830	2,550	2,329	10,082	NA
1980	22,462	12,336	1,143	1,661	485	496	143	539	2,972	2,562	2,335	10,126	NA
1981	22,470	12,573	1,093	1,757	448	448	162	551	3,015	2,849	2,250	9,897	NA
1982	22,143	12,493	1,100	1,859	510	437	136	616	3,062	2,638	2,135	9,650	NA
1983	22,251	12,671	1,128	1,928	444	395	174	614	2,995	2,785	2,208	9,580	NA
1984	21,879	12,422	1,157	1,891	458	380	163	602	3,045	2,685	2,041	9,457	NA
1985	21,306	12,169	1,188	1,906	425	350	177	659	2,913	2,591	1,960	9,137	NA
1986	21,236	12,151	1,354	1,875	397	343	194	557	2,888	2,348	1,995	9,085	NA
1987	21,122	12,052	1,458	1,956	394	319	229	554	2,759	2,516	1,867	9,070	NA
1988	21,460	12,455	1,655	1,948	480	332	265	518	2,965	2,445	1,847	9,005	NA
1989	21,570	12,501	1,726	1,828	498	363	319	570	2,904	2,453	1,834	9,069	NA
1990	22,878	13,170	1,840	2,008	[illegible]	372	339	601	2,975	2,648	1,893	9,708	NA
1991	23,185	13,323	1,837	1,968	557	419	355	545	3,041	2,652	1,949	9,862	NA
1992	23,625	13,326	1,880	1,973	485	425	378	493	3,068	2,636	1,988	10,299	NA
1993	24,052	13,737	2,025	1,911	455	476	410	438	3,146	2,807	2,069	10,315	NA
1994	24,594	13,889	2,020	2,025	504	479	401	487	3,107	2,730	2,136	10,705	NA
1995	24,719	13,902	2,090	1,922	464	535	453	473	3,119	2,727	2,119	10,817	NA
1996	24,685	13,999	2,260	1,888	449	478	[illegible]	444	3,171	2,741	2,212	10,686	NA
1997	23,789	13,623	2,262	1,866	470	470	357	410	3,120	2,464	2,204	10,166	NA

See explanatory information and SOURCE at end of table.

Appendix table 4-12. Doctoral degrees earned by U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total all fields	Science and engineering total	Engineering	Physical sciences	Earth, atmospheric & ocean sciences	Mathematics	Computer science	Agricultural sciences	Biological sciences	Psychology	Social sciences	Non-science and engineering	Index of dissimilarity
	Asians/Pacific Islanders												
1975	1,025	814	275	171	19	62	0	46	141	21	80	211	36.2
1976	975	802	279	181	21	49	0	20	147	22	83	173	39.3
1977	910	745	249	160	21	42	0	21	140	33	79	165	37.1
1978	1,032	835	272	179	25	43	4	37	151	28	96	197	36.6
1979	1,102	884	306	168	21	46	9	23	165	36	110	218	34.3
1980	1,102	868	278	164	22	42	9	28	170	50	105	234	31.7
1981	1,073	827	285	149	14	40	16	25	156	41	101	246	31.4
1982	1,004	768	246	131	27	32	12	23	159	31	107	236	29.4
1983	1,042	780	247	136	26	34	20	33	164	44	76	262	28.9
1984	1,023	778	252	145	18	30	20	20	158	43	92	245	28.8
1985	1,070	809	281	152	19	33	17	24	151	44	88	261	28.6
1986	1,061	816	262	147	14	28	37	22	168	42	96	245	29.2
1987	1,168	925	327	143	18	41	26	38	170	48	114	243	30.3
1988	1,235	916	332	138	14	33	44	30	171	47	107	319	24.8
1989	1,268	986	361	156	23	24	52	23	201	55	91	282	29.5
1990	1,306	1,009	359	164	15	27	48	32	200	53	111	297	28.4
1991	1,531	1,180	405	172	17	57	66	24	261	59	119	351	29.9
1992	1,764	1,345	451	227	27	52	86	37	269	59	137	419	28.8
1993	2,017	1,610	527	265	22	79	77	29	370	73	168	407	32.2
1994	3,446	2,989	867	600	89	142	117	72	720	109	273	457	36.8
1995	4,309	3,671	1,033	751	104	208	137	78	925	122	313	638	38.6
1996	3,697	3,091	895	504	77	140	111	81	888	124	271	606	36.3
1997	3,140	2,527	704	404	71	99	106	63	717	128	235	613	31.3
	Black, non-Hispanics												
1975	1,056	295	16	34	1	11	0	5	49	78	101	761	26.3
1976	1,146	299	21	25	0	5	0	8	53	85	102	847	27.4
1977	1,191	342	15	32	2	9	0	15	36	95	138	849	26.2
1978	1,104	351	13	37	4	13	0	11	55	99	119	753	22.8
1979	1,112	347	20	37	3	11	1	9	35	115	116	765	23.8
1980	1,104	331	18	16	1	12	0	7	51	119	107	773	24.9
1981	1,110	346	19	24	4	9	2	11	50	113	114	764	25.0
1982	1,144	355	20	26	3	6	1	7	49	115	128	789	26.9
1983	1,005	338	29	25	1	3	3	12	46	112	107	667	24.3
1984	1,056	376	15	34	3	4	3	18	50	121	128	680	24.0
1985	1,043	374	34	27	4	7	3	16	53	105	125	669	24.0
1986	956	339	24	27	0	6	1	16	48	111	106	617	23.5
1987	910	319	25	20	2	11	2	13	60	93	93	591	23.4
1988	970	361	31	34	3	4	2	20	48	105	114	609	24.0
1989	963	367	33	31	4	8	1	14	57	97	122	596	24.0
1990	1,050	374	40	30	3	4	1	15	51	115	115	676	24.6
1991	1,166	464	55	32	3	11	8	17	64	130	144	702	21.6
1992	1,116	408	49	25	6	4	5	14	62	106	137	708	23.7
1993	1,280	469	50	41	4	8	6	16	75	119	150	811	23.6
1994	1,279	500	54	46	6	11	10	22	79	124	148	779	20.3
1995	1,477	560	71	43	3	5	11	17	108	151	151	917	20.0
1996	1,457	576	74	60	4	8	12	25	98	154	141	881	17.9
1997	1,476	607	97	50	9	7	4	24	108	152	156	869	17.4

See explanatory information and SOURCE at end of table.

Appendix table 4-12. Doctoral degrees earned by U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Agricultural sciences	Biological sciences	Psychology	Social sciences	Non-science and engineering	Index of dissimilarity[1]
	Hispanics												
1975	347	151	18	19	5	8	0	5	33	32	31	196	10.7
1976	374	139	16	18	0	9	0	4	26	28	38	235	16.4
1977	489	203	24	34	12	12	0	4	26	40	51	286	13.2
1978	553	233	33	23	5	7	0	10	32	53	70	320	14.8
1979	547	234	24	33	6	10	2	6	39	50	64	313	13.5
1980	490	217	27	27	4	5	1	5	31	56	61	273	13.1
1981	529	240	16	30	6	5	0	16	41	66	60	289	12.5
1982	617	274	36	25	7	6	1	7	47	74	71	343	14.8
1983	608	284	29	26	11	7	0	6	43	94	68	324	14.4
1984	605	298	34	47	2	11	3	8	44	84	65	307	11.0
1985	634	296	22	30	6	12	6	12	59	69	80	338	14.2
1986	679	345	35	41	4	12	7	17	66	90	73	334	9.3
1987	708	357	34	56	5	11	4	15	62	95	75	351	9.9
1988	693	397	63	63	7	4	2	21	76	93	68	296	6.0
1989	694	382	47	59	9	11	4	18	71	93	70	312	6.6
1990	837	468	54	72	13	10	5	23	89	109	93	369	6.1
1991	867	492	60	65	16	9	12	15	95	122	98	375	6.2
1992	909	513	71	72	16	12	8	18	102	133	81	396	4.0
1993	973	542	66	79	13	16	7	20	114	131	96	431	4.9
1994	1,030	548	66	90	8	13	7	25	131	133	75	482	6.1
1995	1,061	571	77	73	13	15	6	21	127	145	94	490	5.4
1996	1,105	623	98	66	19	10	16	13	131	173	97	482	4.9
1997	1,181	645	95	64	16	18	16	26	145	169	96	536	7.1
	American Indians/Alaskan Natives												
1975	36	13	1	0	0	3	0	0	1	5	3	23	27.6
1976	40	11	0	0	0	0	0	1	2	4	4	29	26.6
1977	66	31	1	6	0	1	0	1	7	9	6	35	11.5
1978	60	22	2	4	0	1	0	2	5	3	5	38	19.1
1979	81	29	3	1	2	0	1	0	3	10	9	52	21.6
1980	75	27	3	3	2	0	0	1	5	6	7	48	19.4
1981	85	28	4	1	0	1	0	1	6	9	6	57	23.0
1982	77	39	3	3	0	1	1	3	7	16	5	38	16.4
1983	82	30	1	6	2	0	1	1	4	9	6	52	21.2
1984	74	32	3	4	0	3	0	1	10	6	5	42	15.8
1985	96	41	1	3	1	0	0	4	13	10	9	55	15.7
1986	99	52	6	5	2	1	0	0	17	9	12	47	11.1
1987	115	53	7	7	0	0	3	2	11	16	7	62	14.5
1988	94	44	4	6	2	2	1	6	6	7	10	50	17.8
1989	94	53	7	10	6	0	2	2	7	11	8	41	8.8
1990	97	43	4	3	1	1	0	4	4	19	7	54	22.7
1991	132	56	6	10	3	0	1	4	10	13	9	76	15.7
1992	149	69	11	12	1	2	2	0	13	15	13	80	10.4
1993	120	43	2	5	4	1	1	1	7	15	7	77	23.6
1994	143	64	6	6	1	2	1	1	16	12	19	79	16.3
1995	149	69	10	9	0	2	0	2	15	14	17	80	12.8
1996	187	96	14	6	2	1	4	5	21	18	25	91	11.4
1997	151	71	12	9	2	1	1	4	9	18	16	80	13.7

See explanatory information and SOURCE at end of table.

Appendix table 4-12. Doctoral degrees earned by U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, & ocean sciences	Mathematics	Computer science	Agricultural sciences	Biological sciences	Psychology	Social sciences	Non-science and engineering	Index of dissimilarity[1]
	Other/unknown race/ethnicity												
1975	1,370	842	176	149	28	43	0	16	126	109	195	528	11.7
1976	1,285	757	109	136	28	42	0	16	143	88	195	528	9.5
1977	1,177	685	81	147	28	31	3	15	122	103	155	492	7.7
1978	1,544	906	97	168	40	39	9	27	189	151	186	638	6.0
1979	1,546	903	107	179	32	31	9	32	190	134	189	643	7.2
1980	1,279	798	85	164	24	27	16	25	201	116	140	481	10.5
1981	1,074	640	54	142	16	22	8	25	152	80	141	434	9.5
1982	637	410	60	66	10	17	4	14	110	49	80	227	13.5
1983	646	415	48	73	19	18	9	19	72	64	93	231	12.2
1984	615	388	52	73	14	15	6	11	92	48	77	227	11.7
1985	545	376	68	69	10	16	10	11	67	45	80	169	18.4
1986	488	313	45	71	10	12	10	14	54	32	65	175	14.9
1987	539	349	62	60	16	14	11	10	79	38	59	190	13.3
1988	460	325	61	69	14	11	12	15	56	32	55	135	18.7
1989	438	303	55	47	7	16	18	24	60	28	48	135	16.9
1990	435	300	49	64	9	8	10	12	61	48	39	135	12.0
1991	549	399	111	53	22	22	9	15	54	42	71	150	22.3
1992	427	281	58	48	6	12	10	11	54	37	45	146	12.9
1993	266	172	27	29	6	10	8	2	40	16	34	94	14.3
1994	302	197	40	22	5	10	7	9	35	28	41	105	13.0
1995	344	223	61	43	10	6	9	7	35	25	27	121	15.9
1996	375	243	42	44	7	9	14	8	56	16	47	132	14.9
1997	864	532	111	80	19	21	22	19	104	45	110	332	10.5

[1] The dissimilarity index is a measure of the percentage of doctorate recipients in a racial/ethnic group who would need to switch fields of study to match the percentage distribution by field of white students receiving doctoral degrees. The index is calculated as the sum of the absolute difference between the percentage of degree recipients in a particular racial/ethnic group earning doctoral degrees in each field and the percentage of white degree recipients earning doctoral degrees in each field divided by 2.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 4-13. Doctorates awarded, by citizenship status, racial/ethnic group, and field of doctorate: 1997

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Field of doctorate	U.S. citizens and permanent residents, total[1]	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic				American Indian/ Alaskan Native
					Hispanic, total	Puerto Rican	Mexican American	Other Hispanic	
Total, all fields	30,601	23,789	3,140	1,476	1,181	312	299	570	151
Science and engineering, total	18,005	13,623	2,527	607	645	173	157	315	71
Engineering, total	3,281	2,262	704	97	95	23	17	55	12
Chemical	405	291	73	16	7	1	3	3	2
Civil	323	215	74	10	11	5	1	5	2
Electrical	927	575	253	31	26	4	5	17	4
Mechanical	531	373	111	12	15	6	3	6	4
Other engineering	1,095	808	193	28	36	7	5	24	0
Sciences, total	14,724	11,361	1,823	510	550	150	140	260	59
Physical sciences, total	2,473	1,866	404	50	64	20	15	29	9
Astronomy	157	131	8	2	3	0	0	3	1
Chemistry	1,426	1,071	235	33	39	13	9	17	6
Physics	875	650	160	15	22	7	6	9	2
Other physical sciences	15	14	1	0	0	0	0	0	0
Earth, atmospheric, & ocean sciences	587	470	71	9	16	5	4	7	2
Mathematics	616	470	99	7	18	4	3	11	1
Computer sciences	506	357	106	4	16	6	2	8	1
Biological sciences	4,203	3,120	717	108	145	37	42	66	9
Agricultural sciences	546	410	63	24	26	4	2	20	4
Psychology	2,976	2,464	128	152	169	58	47	64	17
Social sciences	2,817	2,204	235	156	96	16	25	55	16
Non-S&E, total	12,596	10,166	613	869	536	139	142	255	80
Health	1,011	817	86	55	31	9	7	15	5
Humanities	4,151	3,491	173	139	200	49	35	116	16
Education	5,532	4,417	176	553	253	70	87	96	48
Professional/other	1,902	1,441	178	122	52	11	13	28	11

See explanatory information and SOURCES at end of table.

Appendix table 4-13. Doctorates awarded, by citizenship status, racial/ethnic group, and field of doctorate: 1997

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Field of doctorate	U.S. citizens and permanent residents, total[1]	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic				American Indian/ Alaskan Native
					Hispanic, total	Puerto Rican	Mexican American	Other Hispanic	
	Percentage distribution								
Total, all fields	100.0	77.7	10.3	4.8	3.9	1.0	1.0	1.9	0.5
Science and engineering, total	100.0	75.7	14.0	3.4	3.6	1.0	0.9	1.7	0.4
Engineering, total	100.0	68.9	21.5	3.0	2.9	0.7	0.5	1.7	0.4
Chemical	100.0	71.9	18.0	4.0	1.7	0.2	0.7	0.7	0.5
Civil	100.0	66.6	22.9	3.1	3.4	1.5	0.3	1.5	0.6
Electrical	100.0	62.0	27.3	3.3	2.8	0.4	0.5	1.8	0.4
Mechanical	100.0	70.2	20.9	2.3	2.8	1.1	0.6	1.1	0.8
Other engineering	100.0	73.8	17.6	2.6	3.3	0.6	0.5	2.2	0.0
Sciences, total	100.0	77.2	12.4	3.5	3.7	1.0	1.0	1.8	0.4
Physical sciences, total	100.0	75.5	16.3	2.0	2.6	0.8	0.6	1.2	0.4
Astronomy	100.0	83.4	5.1	1.3	1.9	0.0	0.0	1.9	0.6
Chemistry	100.0	75.1	16.5	2.3	2.7	0.9	0.6	1.2	0.4
Physics	100.0	74.3	18.3	1.7	2.5	0.8	0.7	1.0	0.2
Other physical sciences	100.0	93.3	6.7	0.0	0.0	0.0	0.0	0.0	0.0
Earth, atmospheric, & ocean sciences	100.0	80.1	12.1	1.5	2.7	0.9	0.7	1.2	0.3
Mathematics	100.0	76.3	16.1	1.1	2.9	0.6	0.5	1.8	0.2
Computer sciences	100.0	70.6	20.9	0.8	3.2	1.2	0.4	1.6	0.2
Biological sciences	100.0	74.2	17.1	2.6	3.4	0.9	1.0	1.6	0.2
Agricultural sciences	100.0	75.1	11.5	4.4	4.8	0.7	0.4	3.7	0.7
Psychology	100.0	82.8	4.3	5.1	5.7	1.9	1.6	2.2	0.6
Social sciences	100.0	78.2	8.3	5.5	3.4	0.6	0.9	2.0	0.6
Non-S&E, total	100.0	80.7	4.9	6.9	4.3	1.1	1.1	2.0	0.6
Health	100.0	80.8	8.5	5.4	3.1	0.9	0.7	1.5	0.5
Humanities	100.0	84.1	4.2	3.3	4.8	1.2	0.8	2.8	0.4
Education	100.0	79.8	3.2	10.0	4.6	1.3	1.6	1.7	0.9
Professional/other	100.0	75.8	9.4	6.4	2.7	0.6	0.7	1.5	0.6

[1] Total includes those of other or unknown race/ethnicity not shown separately.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 4-14 . Doctoral degrees earned by women U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, and ocean sciences	Mathematics	Computer science	Agricultural science	Biological sciences	Psychology	Social sciences	Non-science and engineering
	U.S. citizens and permanent residents, total											
1975	6,716	2,651	39	209	30	90	0	37	747	818	681	4,065
1976	7,132	2,808	42	197	54	95	0	40	712	913	755	4,324
1977	7,226	2,884	57	196	51	96	4	35	701	1,027	717	4 342
1978	7,647	3,082	36	206	56	96	7	39	795	1,055	792	4,565
1979	8,190	3,355	44	247	52	99	27	56	860	1,173	797	4,835
1980	8,666	3,594	74	271	60	86	20	79	954	1,242	808	5,072
1981	9,009	3,748	68	252	48	86	24	92	995	1,391	792	5,261
1982	9,144	3,874	88	284	96	80	17	126	1,037	1,344	802	5,270
1983	9,561	4,214	91	308	86	86	30	105	1,122	1,503	883	5,347
1984	9,629	4,209	101	325	97	86	27	100	1,091	1,520	862	5,420
1985	9,472	4,184	136	347	91	82	24	126	1,078	1,439	861	5,288
1986	9,813	4,367	162	376	76	73	43	123	1,116	1,470	928	5,446
1987	9,871	4,424	174	399	89	77	54	126	1,144	1,529	832	5,447
1988	10,024	4,611	196	410	112	70	46	128	1,252	1,512	885	5,413
1989	10,492	4,921	275	437	120	101	84	164	1,276	1,563	901	5,571
1990	11,248	5,182	276	470	118	93	90	159	1,312	1,772	892	6,066
1991	11,818	5,597	316	454	157	112	94	137	1,390	1,890	1,047	6,221
1992	12,178	5,577	328	514	147	117	83	150	1,438	1,780	1,020	6,601
1993	12,720	6,024	348	521	120	164	109	134	1,584	1,938	1,106	6,696
1994	13,522	6,494	448	625	144	151	94	160	1,743	1,967	1,162	7,028
1995	14,183	6,913	520	708	144	183	143	135	1,860	2,056	1,164	7,270
1996	14,323	6,960	523	610	130	145	91	175	1,941	2,183	1,162	7,363
1997	13,946	6,814	509	581	156	172	98	157	1,895	2,005	1,241	7,132
	White, non-Hispanics											
1975	5,872	2,347	34	171	24	80	0	28	651	747	612	3,525
1976	6,147	2,480	35	153	48	85	0	32	613	841	673	3,667
1977	6,197	2,526	46	155	47	82	4	31	616	921	624	3,671
1978	6,390	2,604	30	156	53	80	6	30	663	922	664	3,786
1979	6,816	2,844	36	188	47	85	23	47	731	1,015	672	3,972
1980	7,288	3,070	58	208	53	73	17	69	817	1,086	689	4,218
1981	7,680	3,254	47	209	46	72	21	84	852	1,241	682	4,426
1982	7,844	3,391	74	233	86	66	17	111	909	1,200	695	4,453
1983	8,256	3,684	77	260	72	76	24	89	988	1,329	769	4,572
1984	8,351	3,697	69	272	91	72	24	92	960	1,365	752	4,654
1985	8,125	3,644	106	285	87	70	21	113	951	1,288	723	4.481
1986	8,512	3,818	136	311	73	61	40	110	977	1,313	797	4,694
1987	8,512	3,830	144	334	84	61	45	109	995	1,346	712	4,682
1988	8,665	4,028	163	339	100	59	40	110	1,114	1,351	752	4,637
1989	9,142	4,288	224	374	110	88	67	149	1,120	1,388	768	4,854
1990	9,718	4,522	226	385	109	79	80	146	1,154	1,573	770	5,196
1991	10,032	4,739	235	383	142	84	73	123	1,170	1,661	868	5,293
1992	10,346	4,703	240	399	132	93	69	129	1,221	1,558	862	5,643
1993	10,704	5,012	261	388	110	124	83	115	1,311	1,711	909	5,692
1994	11,036	5,158	305	408	123	118	75	120	1,349	1,701	959	5,878
1995	11,185	5,222	320	447	108	126	104	104	1,347	1,745	921	5,963
1996	11,457	5,353	347	431	109	105	61	137	1,401	1,836	926	6,104
1997	10,903	5,180	331	407	123	131	65	120	1,381	1,652	970	5,723

See SOURCE at end of table.

Appendix table 4-14 . Doctoral degrees earned by women U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, and ocean sciences	Mathematics	Computer science	Agricultural science	Biological sciences	Psychology	Social sciences	Non-science and engineering
	Asians/Pacific Islanders											
1975	161	108	2	24	0	5	0	7	52	10	8	53
1976	184	120	6	31	3	7	0	4	47	10	12	64
1977	171	112	7	27	3	8	0	2	36	18	11	59
1978	214	145	2	30	2	10	0	6	55	14	26	69
1979	227	150	2	33	0	7	2	4	59	14	29	77
1980	276	185	7	39	4	6	0	6	65	30	28	91
1981	259	168	17	24	2	10	2	5	60	21	27	91
1982	279	175	9	34	6	7	0	9	59	22	29	104
1983	300	190	6	28	8	6	4	9	76	21	32	110
1984	292	187	23	34	2	10	2	4	69	22	21	105
1985	304	189	21	41	1	6	0	5	57	21	37	115
1986	295	195	15	41	1	5	3	4	67	24	35	100
1987	344	231	22	36	3	11	6	7	77	31	38	113
1988	365	222	18	42	4	11	6	7	73	27	34	143
1989	363	241	34	36	4	3	10	6	89	27	32	122
1990	397	252	33	42	1	7	7	6	87	31	38	145
1991	559	374	49	48	6	18	15	8	129	44	57	185
1992	628	418	61	80	8	19	12	12	133	39	54	210
1993	730	531	61	97	8	36	19	9	172	51	78	199
1994	1,077	820	119	178	17	26	16	20	269	77	98	257
1995	1,440	1,114	170	211	28	50	30	16	410	78	121	326
1996	1,299	983	133	145	12	36	16	30	408	93	110	316
1997	1,239	896	118	133	20	28	26	18	349	97	107	343
	Black, non-Hispanics											
1975	354	71	0	3	1	2	0	0	16	25	24	283
1976	447	88	0	6	0	0	0	1	21	36	24	359
1977	439	97	1	3	0	0	0	2	18	38	35	342
1978	457	116	0	5	0	2	0	1	24	47	37	341
1979	509	131	1	4	0	0	0	1	20	68	37	378
1980	544	136	2	2	0	5	0	0	19	64	44	408
1981	531	134	0	3	0	1	1	0	28	64	37	397
1982	579	137	0	5	0	2	0	1	25	64	40	442
1983	519	142	1	2	0	1	2	1	22	75	38	377
1984	548	160	1	2	1	1	1	3	26	76	49	388
1985	547	138	4	7	0	0	0	1	21	63	42	409
1986	525	152	4	4	0	3	0	3	22	68	48	373
1987	474	130	1	3	1	2	1	3	25	59	35	344
1988	527	137	4	8	0	0	0	5	23	58	39	390
1989	510	153	3	7	1	3	1	1	24	61	52	357
1990	571	149	6	7	2	1	0	1	22	72	38	422
1991	614	194	8	5	1	4	4	1	32	86	53	420
1992	597	170	6	6	1	0	1	4	24	78	50	427
1993	701	208	11	10	0	1	4	4	32	75	71	493
1994	726	216	13	13	1	3	2	6	45	78	55	510
1995	862	270	15	18	0	1	4	6	43	112	71	592
1996	816	253	19	13	2	2	3	0	40	115	59	563
1997	840	280	23	10	2	2	1	5	58	110	70	560

See SOURCE at end of table.

Appendix table 4-14 . Doctoral degrees earned by women U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, and ocean sciences	Mathematics	Computer science	Agricultural science	Biological sciences	Psychology	Social sciences	Non-science and engineering
Hispanics												
1975	67	16	0	1	0	1	0	1	4	3	6	51
1976	103	17	0	2	0	0	0	1	4	6	4	86
1977	133	39	0	4	0	3	0	0	8	13	11	94
1978	169	52	1	2	0	0	0	2	10	16	21	117
1979	184	62	1	9	0	3	0	2	11	22	14	122
1980	181	55	1	7	1	0	0	4	7	22	13	126
1981	207	68	0	4	0	1	0	1	13	32	17	139
1982	220	77	3	7	2	1	0	2	17	28	17	143
1983	275	115	4	14	0	2	0	1	21	51	22	160
1984	245	92	6	10	0	1	0	0	15	42	18	153
1985	284	114	0	7	1	5	2	4	23	41	31	170
1986	306	118	3	9	1	3	0	6	27	43	26	188
1987	326	141	5	17	1	2	0	4	24	63	25	185
1988	308	149	6	16	4	0	0	2	27	55	39	159
1989	318	155	8	18	3	4	3	3	21	63	32	163
1990	388	178	9	26	4	4	1	6	33	57	38	210
1991	409	186	10	11	2	4	1	3	39	70	46	223
1992	427	205	15	20	6	3	1	4	43	78	35	222
1993	456	222	12	20	2	2	1	5	57	86	37	234
1994	512	230	6	21	2	3	0	12	62	90	34	282
1995	522	232	11	21	6	4	4	5	47	97	37	290
1996	541	272	14	12	6	0	7	4	66	120	43	269
1997	565	262	23	13	4	6	2	2	62	107	38	303
American Indians/Alaskan Natives												
1975	9	3	0	0	0	0	0	0	1	1	1	6
1976	9	1	0	0	0	0	0	0	0	0	1	8
1977	23	9	0	0	0	0	0	0	2	6	1	14
1978	10	3	0	0	0	1	0	0	0	1	1	7
1979	25	6	0	0	0	0	0	0	0	3	3	19
1980	29	8	0	1	0	0	0	0	2	3	2	21
1981	29	7	0	0	0	0	0	0	1	5	1	22
1982	33	12	0	0	0	0	0	1	3	6	2	21
1983	31	6	0	0	0	0	0	0	1	2	3	25
1984	20	5	0	0	0	0	0	0	3	1	1	15
1985	56	20	0	0	0	0	0	0	9	5	6	36
1986	41	19	1	2	1	1	0	0	6	5	3	22
1987	53	21	0	2	0	0	1	0	4	12	2	32
1988	42	15	0	1	1	0	0	2	2	4	5	27
1989	45	20	2	0	2	0	1	1	3	8	3	25
1990	45	18	0	0	1	0	0	0	1	13	3	27
1991	58	19	2	2	1	0	0	0	4	8	2	39
1992	67	27	3	2	0	1	0	0	5	9	7	40
1993	60	18	0	2	0	0	1	0	2	9	4	42
1994	72	24	2	1	0	0	1	0	5	7	8	48
1995	67	25	0	3	0	1	0	0	5	8	8	42
1996	85	34	2	1	0	0	2	3	9	9	8	51
1997	81	31	2	0	1	0	1	0	4	11	12	50

See SOURCE at end of table.

Appendix table 4-14 . Doctoral degrees earned by women U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, and ocean sciences	Mathematics	Computer science	Agricultural science	Biological sciences	Psychology	Social sciences	Non-science and engineering
	Other/unknown race/ethnicity											
1975	253	106	3	10	5	2	0	1	23	32	30	147
1976	242	102	1	5	3	3	0	2	27	20	41	140
1977	263	101	3	7	1	3	0	0	21	31	35	162
1978	407	162	3	13	1	3	1	0	43	55	43	245
1979	429	162	4	13	5	4	2	2	39	51	42	267
1980	348	140	6	14	2	2	3	0	44	37	32	208
1981	303	117	4	12	0	2	0	2	41	28	28	186
1982	189	82	2	5	2	4	0	2	24	24	19	107
1983	180	77	3	4	6	1	0	5	14	25	19	103
1984	173	68	2	7	3	2	0	1	18	14	21	105
1985	156	79	5	7	2	1	1	3	17	21	22	77
1986	134	65	3	9	0	0	0	0	17	17	19	69
1987	162	71	2	7	0	1	1	3	19	18	20	91
1988	117	60	5	4	3	0	0	2	13	17	16	57
1989	114	64	4	2	0	3	2	4	19	16	14	50
1990	129	63	2	10	1	2	2	0	15	26	5	66
1991	146	85	12	5	5	2	1	2	16	21	21	61
1992	113	54	3	7	0	1	0	1	12	18	12	59
1993	69	33	3	4	0	1	1	1	10	6	7	36
1994	99	46	3	4	1	1	0	2	13	14	8	53
1995	107	50	4	8	2	1	1	4	8	16	6	57
1996	125	65	8	8	1	2	2	1	17	10	16	60
1997	318	165	12	18	6	5	3	12	41	28	44	153

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 4-15. Doctoral degrees earned by male U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, and ocean sciences	Mathematics	Computer science	Agricultural science	Biological sciences	Psychology	Social sciences	Non-science and engineering
	U.S. citizens and permanent residents, total											
1975	22,080	12,990	2,098	2,344	497	833	0	596	2,353	1,789	2,480	9,090
1976	21,631	12,552	1,907	2,195	484	708	0	496	2,448	1,855	2,459	9,079
1977	20,261	11,997	1,742	2,066	529	648	21	479	2,370	1,794	2,348	8,264
1978	18,988	11,469	1,550	1,955	484	570	83	534	2,339	1,803	2,151	7,519
1979	18,594	11,356	1,573	1,958	512	504	148	517	2,402	1,722	2,020	7,238
1980	17,846	10,983	1,480	1,764	478	496	149	526	2,476	1,667	1,947	6,863
1981	17,332	10,906	1,403	1,851	440	439	164	537	2,425	1,767	1,880	6,426
1982	16,478	10,465	1,377	1,826	461	419	138	544	2,397	1,579	1,724	6,013
1983	16,073	10,304	1,391	1,886	417	371	177	580	2,202	1,605	1,675	[illegible]
1984	15,623	10,085	1,412	1,869	398	357	168	560	2,308	1,467	1,546	5,538
1985	15,222	9,881	1,458	1,840	374	336	189	600	2,178	1,425	1,481	5,341
1986	14,706	9,649	1,564	1,790	351	329	206	503	2,125	1,362	1,419	5,057
1987	14,691	9,631	1,739	1,843	346	319	221	506	1,997	1,277	1,383	5,060
1988	14,888	9,887	1,950	1,848	408	316	280	482	2,070	1,217	1,316	5,001
1989	14,535	9,671	1,954	1,694	427	327	312	487	2,024	1,174	[illegible]	4,864
1990	15,355	10,182	2,070	1,871	417	329	313	528	2,068	1,220	1,366	5,173
1991	15,612	10,317	2,158	1,846	461	406	357	483	2,135	1,128	1,343	5,295
1992	15,812	10,365	2,192	1,843	394	390	406	423	2,130	1,206	1,381	[illegible]
1993	15,988	10,549	2,349	1,809	384	426	400	372	2,168	1,223	1,418	[illegible]
1994	17,372	11,693	2,605	2,164	469	506	449	456	2,345	1,169	1,530	5,679
1995	17,876	12,083	2,822	2,133	450	588	473	463	2,469	1,128	1,557	5,793
1996	17,183	11,668	2,860	1,958	428	501	422	401	2,424	1,043	1,631	5,515
1997	16,655	11,190	2,772	1,892	431	444	408	389	2,308	971	1,576	5,464
	White, non-Hispanics											
1975	19,090	11,179	1,617	2,009	451	716	0	533	2,099	1,615	2,139	7,911
1976	18,796	10,872	1,489	1,879	441	613	0	455	2,176	1,700	2,119	7,924
1977	17,457	10,349	1,383	1,728	470	567	18	427	2,124	1,620	2,012	7,108
1978	15,952	9,600	1,139	1,594	413	483	71	456	2,039	1,602	1,803	6,352
1979	15,580	9,470	1,121	1,599	453	420	130	456	2,099	1,535	1,657	6,110
1980	15,174	9,266	1,085	1,453	432	423	126	470	2,155	1,476	1,646	5,908
1981	14,790	9,319	1,046	1,548	402	376	141	467	2,163	1,608	1,568	5,471
1982	14,299	9,102	1,026	1,626	424	371	119	505	2,153	1,438	1,440	5,197
1983	13,995	8,987	1,051	1,668	372	319	150	525	2,007	1,456	1,439	5,008
1984	13,528	8,725	1,088	1,619	367	308	139	510	2,085	1,320	1,289	4,803
1985	13,181	8,525	1,082	1,621	338	280	156	546	1,962	1,303	1,237	4,656
1986	12,724	8,333	1,218	1,564	324	282	154	447	1,911	1,235	1,198	4,391
1987	12,610	8,222	1,314	1,622	310	258	184	445	1,764	1,170	1,155	4,388
1988	12,795	8,427	1,492	1,609	380	273	225	408	1,851	1,094	1,095	4,368
1989	12,428	8,213	1,502	1,454	388	281	252	421	1,784	1,065	1,066	4,215
1990	13,160	8,648	1,614	1,623	385	293	259	455	1,821	1,075	1,123	4,512
1991	13,153	8,584	1,602	1,585	415	335	282	422	1,871	991	1,081	4,569
1992	13,279	8,623	1,640	1,574	353	332	309	364	1,847	1,078	1,126	4,656
1993	13,348	8,725	1,764	1,523	345	352	327	323	1,835	1,096	1,160	4,623
1994	13,558	8,731	1,715	1,617	381	361	326	367	1,758	1,029	1,177	4,827
1995	13,534	8,680	1,770	1,475	356	409	349	369	1,772	982	1,198	4,854
1996	13,228	8,646	1,913	1,457	340	373	295	307	1,770	905	1,286	4,582
1997	12,886	8,443	1,931	1,459	347	339	292	290	1,739	812	1,234	4,443

See SOURCE at end of table.

Appendix table 4-15 . Doctoral degrees earned by male U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, and ocean sciences	Mathematics	Computer science	Agricultural science	Biological sciences	Psychology	Social sciences	Non-science and engineering
	Asians/Pacific Islanders											
1975	864	706	273	147	18	57	0	39	89	11	72	158
1976	791	682	273	150	18	42	0	16	100	12	71	109
1977	739	633	242	133	18	34	0	19	104	15	68	106
1978	818	690	270	149	23	33	4	31	96	14	70	128
1979	875	734	304	135	21	39	7	19	106	22	81	141
1980	826	683	271	125	18	36	9	22	105	20	77	143
1981	814	659	268	125	12	30	14	20	96	20	74	155
1982	725	593	237	97	21	25	12	14	100	9	78	132
1983	742	590	241	108	18	28	16	24	88	23	44	152
1984	731	591	229	111	16	20	18	16	89	21	71	140
1985	766	620	260	111	18	27	17	19	94	23	51	146
1986	766	621	247	106	13	23	34	18	101	18	61	145
1987	824	694	305	107	15	30	20	31	93	17	76	130
1988	870	694	314	96	10	22	38	23	98	20	73	176
1989	905	745	327	120	19	21	42	17	112	28	59	160
1990	909	757	326	122	14	20	41	26	113	22	73	152
1991	972	806	356	124	11	39	51	16	132	15	62	166
1992	1,136	927	390	147	19	33	74	25	136	20	83	209
1993	1,287	1,079	466	168	14	43	58	20	198	22	90	208
1994	2,469	2,169	748	422	72	116	101	52	451	32	175	300
1995	2,869	2,557	863	540	76	158	107	62	515	44	192	312
1996	2,398	2,108	762	359	65	104	95	51	480	31	161	290
1997	1,901	1,631	586	271	51	71	80	45	368	31	128	270
	Black, non-Hispanics											
1975	702	224	16	31	0	9	0	5	33	53	77	478
1976	699	211	21	19	0	5	0	7	32	49	78	488
1977	752	245	14	29	2	9	0	13	18	57	103	507
1978	647	235	13	32	4	11	0	10	31	52	82	412
1979	603	216	19	33	3	11	1	8	15	47	79	387
1980	560	195	16	14	1	7	0	7	32	55	63	365
1981	579	212	19	21	4	8	1	11	22	49	77	367
1982	565	218	20	21	3	4	1	6	24	51	88	347
1983	486	196	28	23	1	2	1	11	24	37	69	290
1984	508	216	14	32	2	3	2	15	24	45	79	292
1985	496	236	30	20	4	7	3	15	32	42	83	260
1986	431	187	20	23	0	3	1	13	26	43	58	244
1987	436	189	24	17	1	9	1	10	35	34	58	247
1988	443	224	27	26	3	4	2	15	25	47	75	219
1989	453	214	30	24	3	5	0	13	33	36	70	239
1990	479	225	34	23	1	3	1	14	29	43	77	254
1991	552	270	47	27	2	7	4	16	32	44	91	282
1992	519	238	43	19	5	4	4	10	38	28	87	281
1993	579	261	39	31	4	7	2	12	43	44	79	318
1994	553	284	41	33	5	8	8	16	34	46	93	269
1995	615	290	56	25	3	4	7	11	65	39	80	325
1996	641	323	55	47	2	6	9	25	58	39	82	318
1997	636	327	74	40	7	5	3	19	51	42	86	309

See SOURCE at end of table.

Appendix table 4-15 . Doctoral degrees earned by male U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, and ocean sciences	Mathematics	Computer science	Agricultural science	Biological sciences	Psychology	Social sciences	Non-science and engineering
	Hispanics											
1975	280	135	18	18	5	7	0	4	29	29	25	145
1976	271	122	16	16	0	9	0	3	22	22	34	149
1977	356	164	24	30	12	9	0	4	18	27	40	192
1978	384	181	32	21	5	7	0	8	22	37	49	203
1979	363	172	23	24	6	7	2	4	28	28	50	191
1980	309	162	26	20	3	5	1	1	24	34	48	147
1981	322	172	16	26	6	4	0	15	28	34	43	150
1982	397	197	33	18	5	5	1	5	30	46	54	200
1983	333	169	25	12	11	5	0	5	22	43	46	164
1984	360	206	28	37	2	10	3	8	29	42	47	154
1985	350	182	22	23	5	7	4	8	36	28	49	168
1986	373	227	32	32	3	9	7	11	39	47	47	146
1987	382	216	29	39	4	9	4	11	38	32	50	166
1988	385	248	57	47	3	4	2	19	49	38	29	137
1989	376	227	39	41	6	7	1	15	50	30	38	149
1990	449	290	45	46	9	6	4	17	56	52	55	159
1991	458	306	50	54	14	5	11	12	56	52	52	152
1992	482	308	56	52	10	9	7	14	59	55	46	174
1993	517	320	54	59	11	14	6	15	57	45	59	197
1994	518	318	60	69	6	10	7	13	69	43	41	200
1995	539	339	66	52	7	11	2	16	80	48	57	200
1996	564	351	84	54	13	10	9	9	65	53	54	215
1997	616	383	72	51	12	12	14	19	83	62	58	233
	American Indians/Alaskan Natives											
1975	27	10	1	0	0	3	0	0	0	4	2	17
1976	31	10	0	0	0	0	0	1	2	4	3	21
1977	43	22	1	6	0	1	0	1	5	3	5	21
1978	50	19	2	4	0	0	0	2	5	2	4	31
1979	56	23	3	1	2	0	1	0	3	7	6	33
1980	46	19	3	2	2	0	0	1	3	3	5	27
1981	56	21	4	1	0	1	0	1	5	4	5	35
1982	44	27	3	3	0	1	1	2	4	10	3	17
1983	51	24	1	6	2	0	1	1	3	7	3	27
1984	54	27	3	4	0	3	0	1	7	5	4	27
1985	40	21	1	3	1	0	0	4	4	5	3	19
1986	58	33	5	3	1	0	0	0	11	4	9	25
1987	62	32	7	5	0	0	2	2	7	4	5	30
1988	52	29	4	5	1	2	1	4	4	3	5	23
1989	49	33	5	10	4	0	1	1	4	3	5	16
1990	52	25	4	3	0	1	0	4	3	6	4	27
1991	74	37	4	8	2	0	1	4	6	5	7	37
1992	82	42	8	10	1	1	2	0	8	6	6	40
1993	60	25	2	3	4	1	0	1	5	6	3	35
1994	71	40	4	5	1	2	0	1	11	5	11	31
1995	82	44	10	6	0	1	0	2	10	6	9	38
1996	102	62	12	5	2	1	2	2	12	9	17	40
1997	70	40	10	9	1	1	0	4	5	6	4	30

See SOURCE at end of table.

Appendix table 4-15 . Doctoral degrees earned by male U.S. citizens and permanent residents, by race/ethnicity and field: 1975–97

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Year	Total, all fields	Science and engineering, total	Engineering	Physical sciences	Earth, atmospheric, and ocean sciences	Mathematics	Computer science	Agricultural science	Biological sciences	Psychology	Social sciences	Non-science and engineering
	Other/unknown race/ethnicity											
1975	1,117	736	173	139	23	41	0	15	103	77	165	381
1976	1,043	655	108	131	25	39	0	14	116	68	154	388
1977	914	584	78	140	27	28	3	15	101	72	120	330
1978	1,137	744	94	155	39	36	8	27	146	96	143	393
1979	1,117	741	103	166	27	27	7	30	151	83	147	376
1980	931	658	79	160	22	25	13	25	157	79	108	273
1981	771	523	50	130	16	20	8	23	111	52	113	248
1982	448	328	58	61	8	13	4	12	86	25	61	120
1983	466	338	45	69	13	17	9	14	58	39	74	128
1984	442	320	50	66	11	13	6	10	74	34	56	122
1985	389	297	63	62	8	15	9	8	50	24	58	92
1986	354	248	42	62	10	12	10	14	37	15	46	106
1987	377	278	60	53	16	13	10	7	60	20	39	99
1988	343	265	56	65	11	11	12	13	43	15	39	78
1989	324	239	51	45	7	13	16	20	41	12	34	85
1990	306	237	47	54	8	6	8	12	46	22	34	69
1991	403	314	99	48	17	20	8	13	38	21	50	89
1992	314	227	55	41	6	11	10	10	42	19	33	87
1993	197	139	24	25	6	9	7	1	30	10	27	58
1994	203	151	37	18	4	9	7	7	22	14	33	52
1995	237	173	57	35	8	5	8	3	27	9	21	64
1996	250	178	34	36	6	7	12	7	39	6	31	72
1997	546	366	99	62	13	16	19	12	62	18	66	179

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 4-16. Recipients of science and engineering doctorates, by disability status: 1989–97, selected years

Disability status	1989	1993	1994	1995	1996	1997
Total, science and engineering	21,731	25,441	26,202	26,535	27,230	26,847
Number reporting disability	200	331	373	357	284	319
Percentage reporting disability	0.9	1.3	1.4	1.3	1.0	1.2
Science	17,188	19,743	20,380	20,527	20,925	20,795
Number reporting disability	175	286	314	294	246	278
Percentage reporting disability	1.0	1.4	1.5	1.4	1.2	1.3
Engineering	4,543	5,698	5,822	6,008	6,305	6,052
Number reporting disability	25	45	59	63	38	40
Percentage reporting disability	0.6	0.8	1.0	1.0	0.6	0.7

NOTE: Because survey forms differed prior to 1989 and in 1990 and 1991, and because some respondents in 1992 filled out the 1991 form, data for those years are not included in the table.

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 4-17. Recipients of science and engineering doctorates, by field and disability status: 1997

Field	Number			Percentage		
	Total, all doctorates	Persons with no disabilities	Persons with disabilities	Total, all doctorates	Persons with no disabilities	Persons with disabilities
Total, science and engineering	26,847	20,517	318	100.0	100.0	100.0
Computer science	889	876	13	3.3	4.3	4.1
Mathematics and statistics	1,112	1,102	10	4.1	5.4	3.1
Physical sciences	3,711	3,679	32	13.8	17.9	10.1
Earth, atmospheric & ocean sciences	862	853	9	3.2	4.2	2.8
Agricultural sciences	966	959	7	3.6	4.7	2.2
Biological sciences	5,717	5,668	49	21.3	27.6	15.4
Psychology	3,489	3,408	81	13.0	16.6	25.5
Social sciences	4,049	3,972	77	15.1	19.4	24.2
Engineering	6,052	6,012	40	22.5	29.3	12.6

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 4-18. Percentage distribution of definite postgraduation plans of science and engineering doctorate recipients, by sex and major field: 1997 [U.S. citizens and permanent residents]

Field	Total with definite plans	In the United States					Abroad	Location unknown
		Total in U.S.	Postdoctoral study	Academic employment	Industry employment	Other		
	All such recipients							
Science and engineering, total	100.0	92.6	36.0	19.0	21.2	16.3	4.1	3.4
Engineering, total	100.0	93.4	16.3	10.6	50.4	16.1	3.4	3.2
Sciences, total	100.0	92.4	40.4	20.9	14.8	16.4	4.2	3.4
Physical sciences	100.0	94.3	49.8	9.0	27.8	7.8	4.2	1.4
Earth, atmospheric, and ocean sciences	100.0	89.2	36.4	15.6	15.4	21.8	6.9	3.8
Mathematics	100.0	90.7	21.2	38.0	18.6	12.9	5.2	4.1
Computer sciences	100.0	93.4	12.2	25.5	44.9	10.6	2.4	4.3
Biological sciences	100.0	92.3	67.7	9.2	4.7	10.8	4.4	3.3
Agricultural sciences	100.0	89.6	28.3	23.3	22.3	15.7	6.6	3.8
Psychology	100.0	95.1	29.7	20.8	14.8	29.8	1.2	3.7
Social sciences	100.0	89.0	9.1	48.8	10.3	20.8	6.4	4.6
Non-science and engineering, total	100.0	92.1	4.4	49.0	6.5	32.1	2.8	5.2
	Women							
Science and engineering, total	100.0	93.1	39.3	22.6	14.2	17.0	3.3	3.6
Engineering, total	100.0	91.7	17.0	17.0	46.6	11.1	3.4	4.9
Sciences, total	100.0	93.2	41.1	23.0	11.6	17.5	3.3	3.5
Physical sciences	100.0	96.7	47.0	13.4	28.3	8.0	2.3	1.0
Earth, atmospheric, and ocean sciences	100.0	87.1	38.6	21.8	7.9	18.8	9.9	3.0
Mathematics	100.0	94.7	21.1	43.0	19.3	11.4	1.8	3.5
Computer sciences	100.0	85.9	11.3	36.6	32.4	5.6	4.2	9.9
Biological sciences	100.0	93.2	71.3	9.7	3.1	9.1	4.0	2.8
Agricultural sciences	100.0	87.8	29.3	22.0	23.2	13.4	7.3	4.9
Psychology	100.0	94.9	31.3	20.8	14.2	28.6	1.0	4.1
Social sciences	100.0	90.5	9.3	50.9	9.3	21.0	5.2	4.3
Non-science and engineering, total	100.0	92.7	4.6	49.2	6.0	32.9	1.9	5.3
	Men							
Science and engineering, total	100.0	92.2	34.1	16.9	25.3	15.9	4.5	3.2
Engineering, total	100.0	93.7	16.2	9.4	51.1	17.0	3.4	2.9
Sciences, total	100.0	91.8	39.9	19.3	17.0	15.6	4.9	3.3
Physical sciences	100.0	93.6	50.7	7.7	27.6	7.7	4.8	1.5
Earth, atmospheric, and ocean sciences	100.0	90.0	35.6	13.5	18.0	22.8	5.9	4.2
Mathematics	100.0	89.0	21.2	35.9	18.3	13.6	6.6	4.4
Computer sciences	100.0	95.1	[illegible]2.5	23.0	47.9	11.8	2.0	3.0
Biological sciences	100.0	91.6	64.8	8.7	5.9	12.1	4.7	3.7
Agricultural sciences	100.0	90.3	28.0	23.7	22.0	16.5	6.4	3.4
Psychology	100.0	95.4	26.5	20.8	15.9	32.2	1.6	3.0
Social sciences	100.0	87.8	8.9	47.2	11.1	20.6	7.3	4.9
Non-science and engineering, total	100.0	91.2	4.2	48.8	7.0	31.1	3.9	5.0

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 4-19. Science and engineering postdoctoral fellows, by sex and field: 1979–97

Page 1 of 2

Year	Science and engineering, total	Engineering, total	Physical sciences	Earth, atmospheric & ocean sciences	Computer science	Mathematics	Agricultural sciences	Biological sciences	Psychology	Social sciences
					Total					
1979	13,549	1,067	4,026	315	38	162	227	6,863	454	397
1980	13,996	977	4,260	310	43	162	259	7,083	475	427
1981	14,711	1,033	4,432	340	34	113	292	7,678	471	318
1982	14,617	974	4,252	336	46	194	293	7,719	520	283
1983	15,606	1,103	4,415	416	80	170	308	8,337	436	341
1984	16,124	1,201	4,365	489	58	203	375	8,688	422	323
1985	16,873	1,354	4,503	375	68	226	372	9,128	498	349
1986	17,859	1,400	4,813	417	72	201	412	9,702	520	322
1987	18,777	1,443	4,945	420	99	229	442	10,361	459	379
1988	19,690	1,685	5,185	493	91	284	464	10,670	498	320
1989	20,868	1,912	5,356	450	78	224	517	11,428	536	367
1990	21,773	1,939	5,566	591	71	248	524	11,932	464	438
1991	22,813	2,243	5,691	623	120	206	565	12,479	507	379
1992	23,829	2,351	5,758	690	144	201	630	13,172	523	360
1993	24,605	2,434	5,640	762	164	224	698	13,785	520	378
1994	25,734	2,590	5,849	815	183	239	705	14,417	546	390
1995	26,087	2,628	5,829	845	213	259	688	14,672	577	376
1996	26,513	2,662	5,803	859	247	326	665	14,918	589	444
1997	26,806	2,938	5,836	934	315	303	692	14,872	560	356
					Women					
1979	2,517	50	384	30	2	20	28	1,706	156	141
1980	2,673	65	429	35	2	14	33	1,802	173	120
1981	2,946	81	475	33	6	13	36	2,021	181	100
1982	3,231	82	511	50	9	16	35	2,199	218	111
1983	3,450	88	532	62	9	16	57	2,397	177	112
1984	3,606	84	489	66	9	28	71	2,603	155	101
1985	3,940	101	595	57	10	29	73	2,736	225	114
1986	4,349	131	632	62	10	26	93	3,056	224	115
1987	4,667	149	665	63	13	32	99	3,329	192	125
1988	4,911	171	713	85	11	37	110	3,452	216	116
1989	5,311	175	749	70	14	28	133	3,803	209	130
1990	5,638	205	794	94	9	30	138	3,992	221	155
1991	5,953	237	835	111	20	29	131	4,205	237	148
1992	6,425	250	836	154	32	26	157	4,594	250	126
1993	6,764	281	843	163	29	33	171	4,881	225	138
1994	7,283	334	872	172	31	47	184	5,245	243	155
1995	7,475	320	932	184	29	42	165	5,363	278	162
1996	7,612	313	929	183	48	50	157	5,448	283	201
1997	7,779	344	1,022	220	46	40	186	5,508	274	139

See explanatory information and SOURCE at end of table.

Appendix table 4-19. Science and engineering postdoctoral fellows, by sex and field: 1979–97

Page 2 of 2

Year	Science and engineering, total	Engineering, total	Physical sciences	Earth, atmospheric & ocean sciences	Computer science	Mathematics	Agricultural sciences	Biological sciences	Psychology	Social sciences
					Men					
1979	11,032	1,017	3,642	285	36	142	199	5,157	298	256
1980	11,323	912	3,831	275	41	148	226	5,281	302	307
1981	11,765	952	3,957	307	28	100	256	5,657	290	218
1982	11,386	892	3,741	286	37	178	258	5,520	302	172
1983	12,156	1,015	3,883	354	71	154	251	5,940	259	229
1984	12,518	1,117	3,876	423	49	175	304	6,085	267	222
1985	12,933	1,253	3,908	318	58	197	299	6,392	273	235
1986	13,510	1,269	4,181	355	62	175	319	6,646	296	207
1987	14,110	1,294	4,280	357	86	197	343	7,032	267	254
1988	14,779	1,514	4,472	408	80	247	354	7,218	282	204
1989	15,557	1,737	4,607	380	64	196	384	7,625	327	237
1990	16,135	1,734	4,772	497	62	218	386	7,940	243	283
1991	16,860	2,006	4,856	512	100	17[illegible]	434	8,274	270	231
1992	17,404	2,101	4,922	536	112	175	473	8,578	273	234
1993	17,841	2,153	4,797	599	135	191	527	8,904	295	240
1994	18,451	2,256	4,977	643	152	192	521	9,172	303	235
1995	18,612	2,308	4,897	661	184	217	523	9,309	299	214
1996	18,901	2,349	4,874	676	199	276	508	9,470	306	243
1997	19,027	2,594	4,814	714	269	263	506	9,364	286	217
					Percent women					
1979	18.6	4.7	9.5	9.5	5.3	12.3	12.3	24.9	34.4	35.5
1980	19.1	6.7	10.1	11.3	4.7	8.6	12.7	25.4	36.4	28.1
1981	20.0	7.8	10.7	9.7	17.6	11.5	12.3	26.3	38.4	31.4
1982	22.1	8.4	12.0	14.9	19.6	8.2	11.9	28.5	41.9	39.2
1983	22.1	8.0	12.0	14.9	11.3	9.4	18.5	28.8	40.6	32.8
1984	22.4	7.0	11.2	13.5	15.5	13.8	18.9	30.0	36.7	31.3
1985	23.4	7.5	13.2	15.2	14.7	12.8	19.6	30.0	45.2	32.7
1986	24.4	9.4	13.1	14.9	13.9	12.9	22.6	31.5	43.1	35.7
1987	24.9	10.3	13.4	15.0	13.1	14.0	22.4	32.1	41.8	33.0
1988	24.9	10.1	13.8	17.2	12.1	13.0	23.7	32.4	43.4	36.3
1989	25.5	9.2	14.0	15.6	17.9	12.5	25.7	33.3	39.0	35.4
1990	25.9	10.6	14.3	15.9	12.7	12.1	26.3	33.5	47.6	35.4
1991	26.1	10.6	14.7	17.8	16.7	14.1	23.2	33.7	46.7	39.1
1992	27.0	10.6	14.5	22.3	22.2	12.9	24.9	34.9	47.8	35.0
1993	27.5	11.5	14.9	21.4	17.7	14.7	24.5	35.4	43.3	36.5
1994	28.3	12.9	14.9	21.1	16.9	19.7	26.1	36.4	44.5	39.7
1995	28.7	12.2	16.0	21.8	13.6	16.2	24.0	36.6	48.2	43.1
1996	28.7	11.8	16.0	21.3	19.4	15.3	23.6	36.5	48.0	45.3
1997	29.0	11.7	17.5	23.6	14.6	13.2	26.9	37.0	48.9	39.0

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Graduate Students and Postdoctorates in Science and Engineering.

Appendix table 4-20. Percentage distribution of science and engineering doctorate recipients, by postdoctoral plans and race/ethnicity: 1997 [U.S. citizens and permanent residents]

Postdoctoral status	Total	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Unknown race
Definite plans	65.2	67.1	59.6	59.5	65.8	58.3	41.2
Definite plans in the United States	62.4	64.4	56.4	57.8	62.6	58.3	37.4
Definite plans for postdoctoral study in the U.S.	41.3	40.2	49.9	29.4	39.7	28.6	39.6
Definite U.S. employment: postsecondary/medical school	22.8	24.8	8.7	34.8	27.9	33.9	20.9
Definite U.S. employment: industry/self	22.9	21.0	35.0	17.4	18.5	17.9	20.9
Definite U.S. employment: other	13.0	14.0	6.3	18.3	13.8	19.6	18.7
Definite plans abroad	2.7	2.7	2.8	1.7	3.2	0.0	2.9
Definite plans location unknown/unreported	0.1	0.1	0.3	0.0	0.0	0.0	0.8

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 4-21. Number and percentage distribution of definite postgraduation plans of science and engineering (S&E) doctorate recipients, by disability status: 1997 [U.S. citizens and permanent residents]

Disability status	Total with definite plans	In the United States					Abroad	Location unknown
		Total in U.S.	Postdoctoral study	Academic employment	Industry employment	Other		
	Number							
Total	11,875	10,991	4,278	2,255	2,519	1,939	484	400
With disabilities	148	135	42	34	26	33	6	7
With no disabilities	11,727	10,856	4,236	2,221	2,493	1,906	478	393
	Percentage distribution							
Total	100.0	92.6	36.0	19.0	21.2	16.3	4.1	3.4
With disabilities	100.0	91.2	28.4	23.0	17.6	22.3	4.1	4.7
With no disabilities	100.0	92.6	36.1	18.9	21.3	16.3	4.1	3.4

SOURCE: National Science Foundation/Division of Science Resources Studies, Survey of Earned Doctorates.

Appendix table 5-1. Scientists and engineers in the U.S. labor force, by occupation, sex, and highest degree: 1997

Occupation	All degrees			Bachelor's			Master's			Doctorate		
	Total	Women	Men	Total	Women	Men	Total	Women	Men	Total	Women	Men
Total scientists and engineers	3,422,200	780,300	2,641,900	1,948,600	406,000	1,542,600	981,900	256,800	725,000	460,900	107,900	352,900
Computer/mathematical scientists	1,054,000	287,500	766,600	685,800	192,500	493,300	304,600	83,300	221,300	59,900	10,900	49,000
Computer scientists	946,400	250,500	695,900	660,200	183,300	476,800	256,600	62,900	193,700	26,300	3,700	22,600
Mathematical scientists	35,300	12,100	23,200	12,200	3,900	8,300	16,100	6,400	9,700	7,100	1,800	5,300
Postsecondary computer/ mathematics teachers	72,300	24,900	47,400	13,500	5,400	8,200	32,000	14,100	17,900	26,600	5,400	21,200
Life and related scientists	329,200	119,200	209,900	128,300	53,100	75,200	71,400	30,700	40,700	114,200	31,800	82,400
Agricultural/food scientists	43,800	11,000	32,800	22,700	6,100	16,600	11,000	3,400	7,600	10,000	1,600	8,400
Biological scientists	187,100	78,500	108,600	75,300	38,000	37,400	38,400	17,900	20,600	66,100	20,400	45,700
Environmental scientists	20,200	3,200	17,000	14,600	2,700	11,900	4,200	300	3,800	1,200	200	1,100
Postsecondary life science teachers	78,100	26,500	51,600	15,600	6,300	9,300	17,900	9,200	8,700	36,900	9,800	27,200
Physical and related scientists	289,400	63,400	226,000	134,000	35,600	98,400	70,100	16,900	53,200	84,900	10,800	74,100
Chemists	121,800	32,600	89,200	71,600	22,100	49,500	20,700	6,100	14,600	29,500	4,500	25,000
Earth/geology/oceanographers	69,800	11,200	58,600	35,600	5,900	29,700	23,400	4,100	19,300	10,700	1,200	9,500
Physicists and astronomers	31,800	3,100	28,700	7,500	600	6,800	9,100	1,500	7,600	15,200	1,000	14,200
Other physical scientists	17,400	5,600	11,700	8,700	2,900	5,800	7,100	2,600	4,500	1,400	100	1,300
Postsecondary physical science teachers	48,600	10,800	37,800	10,700	4,100	6,600	9,800	2,700	7,100	28,100	4,000	24,100
Social and related scientists	352,400	183,500	169,000	68,800	39,400	29,400	153,000	90,200	62,800	121,500	48,900	72,700
Economists	45,800	15,600	30,100	16,500	8,100	8,400	21,100	5,700	15,400	7,900	1,600	6,300
Political scientists	9,300	3,800	5,500	5,100	2,100	2,900	3,300	1,500	1,800	900	200	800
Psychologists	183,200	115,500	67,800	26,200	17,000	9,200	96,300	67,300	28,900	54,500	27,600	26,900
Sociologists/anthropologists	16,000	8,800	7,300	7,000	4,200	2,800	5,400	2,700	2,700	3,600	1,800	1,700
Other social scientists	12,100	7,400	4,700	4,800	2,700	2,100	3,700	2,100	1,600	2,700	1,600	1,100
Postsecondary social science teachers	85,900	32,300	53,600	9,300	5,200	4,000	23,300	10,800	12,400	51,900	16,000	35,900
Engineers	1,397,100	126,800	1,270,300	931,700	85,400	846,300	382,700	35,700	347,000	80,300	5,500	74,800
Aerospace engineers	73,600	5,700	68,000	41,500	3,700	37,800	27,600	1,700	26,000	4,400	300	4,100
Chemical engineers	77,400	10,600	66,800	49,700	7,600	42,100	20,400	2,500	18,000	7,300	600	6,700
Civil engineers	210,000	19,600	190,400	153,100	14,900	138,200	52,200	4,500	47,800	4,000	200	3,800
Electrical engineers	371,100	24,600	346,400	244,000	16,200	227,800	109,100	7,500	101,600	16,900	900	16,100
Industrial engineers	81,400	8,900	72,400	60,100	6,500	53,600	19,600	2,200	17,400	1,400	200	1,200
Mechanical engineers	274,500	16,600	257,900	202,300	11,800	190,500	62,900	4,500	58,400	9,100	300	8,800
Other engineers	274,900	37,600	237,300	175,500	23,900	151,600	81,200	11,800	69,400	17,900	1,700	16,200
Postsecondary engineering teachers	34,300	3,200	31,100	5,500	800	4,700	9,700	1,100	8,600	19,200	1,400	17,800

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "professional and other degrees" not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-2. Scientists and engineers in the U.S. labor force, by occupation, race/ethnicity, and highest degree: 1997

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Occupation	All degrees						Bachelor's					
	Total	White	Asian/ Pacific Islander	Black	Hispanic	American Indian/ Alaskan Native	Total	White	Asian/ Pacific Islander	Black	Hispanic	American Indian/ Alaskan Native
Total scientists and engineers	3,422,200	2,832,200	356,900	115,200	106,200	10,000	1,948,600	1,656,100	146,900	74,300	64,000	6,300
Computer/mathematical scientists	1,054,000	850,500	128,600	45,400	27,000	1,800	685,800	574,600	57,000	33,500	18,800	1,200
Computer scientists	946,400	762,200	118,000	40,600	24,100	1,500	660,200	553,200	55,400	32,100	18,300	1,200
Mathematical scientists	35,300	29,100	3,100	1,700	600	100	12,200	9,800	800	700	100	-
Postsecondary computer/ mathematics teachers	72,300	59,100	7,500	3,100	2,300	200	13,500	11,600	900	700	400	-
Life and related scientists	329,200	277,600	33,700	8,200	8,400	1,400	128,300	111,500	8,800	3,400	3,600	900
Agricultural/food scientists	43,800	39,000	2,700	1,100	900	-	22,700	20,500	800	900	500	-
Biological scientists	187,100	150,100	25,800	5,100	5,000	1,000	75,300	63,000	6,900	2,300	2,400	700
Environmental scientists	20,200	19,500	100	100	400	200	14,600	14,300	-	-	200	200
Postsecondary life science teachers	78,100	69,000	5,100	1,900	2,000	100	15,600	13,700	1,100	200	500	-
Physical and related scientists	289,400	243,400	28,400	8,400	7,900	1,000	134,000	115,800	8,100	5,500	4,100	500
Chemists	121,800	95,900	16,600	5,600	3,400	100	71,600	59,300	5,900	4,100	2,200	100
Earth/geology/oceanographers	69,800	63,000	3,600	1,100	1,900	300	35,600	33,000	1,200	600	700	100
Physicists and astronomers	31,800	27,000	3,700	400	600	100	7,500	6,700	200	200	400	-
Other physical scientists	17,400	15,900	600	300	400	200	8,700	8,000	100	200	300	200
Postsecondary physical science teachers	48,600	41,600	3,900	1,200	1,500	300	10,700	8,800	800	400	600	100
Social and related scientists	352,400	305,600	13,400	16,900	14,500	2,000	68,800	56,300	2,500	4,800	4,200	900
Economists	45,800	38,700	4,000	1,400	1,600	-	5,100	4,600	100	100	200	-
Political scientists	9,300	8,400	300	100	500	-	16,500	14,700	600	800	400	-
Psychologists	183,200	162,000	2,800	9,300	7,900	1,200	26,200	19,800	800	2,600	2,400	600
Sociologists/anthropologists	16,000	13,800	400	1,000	600	100	7,000	5,800	-	500	600	100
Other social scientists	12,100	10,500	500	700	300	200	4,800	3,900	300	200	200	200
Postsecondary social science teachers	85,900	72,200	5,300	4,300	3,500	500	9,300	7,300	800	600	500	100
Engineers	1,397,100	1,155,100	152,900	36,400	48,600	3,900	931,700	797,900	70,500	27,100	33,200	2,800
Aerospace engineers	73,600	62,500	6,500	2,300	1,900	500	41,500	35,300	3,000	1,600	1,200	400
Chemical engineers	77,400	62,600	9,800	1,800	3,200	100	49,700	42,000	3,900	1,500	2,200	100
Civil engineers	210,000	170,900	25,400	3,900	9,000	600	153,100	129,600	13,600	3,100	6,300	500
Electrical engineers	371,100	292,900	52,200	10,900	14,000	1,000	244,000	200,300	25,000	8,700	9,300	800
Industrial engineers	81,400	67,800	6,000	3,800	3,500	400	60,100	51,300	3,200	3,100	2,400	100
Mechanical engineers	274,500	234,000	26,200	6,100	7,200	900	202,300	179,500	12,400	4,200	5,500	500
Other engineers	274,900	238,400	21,000	6,400	8,600	500	175,500	155,800	8,500	4,500	6,300	300
Postsecondary engineering teachers	34,300	26,000	5,800	1,200	1,300	-	5,500	4,100	900	400	100	-

See explanatory information and SOURCE at end of table.

Appendix table 5-2. Scientists and engineers in the U.S. labor force, by occupation, race/ethnicity, and highest degree: 1997

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Occupation	Master's						Doctorate					
	Total	White	Asian/ Pacific Islander	Black	Hispanic	American Indian/ Alaskan Native	Total	White	Asian/ Pacific Islander	Black	Hispanic	American Indian/ Alaskan Native
Total scientists and engineers	981,900	780,900	137,900	30,400	30,000	2,300	460,900	368,200	70,300	9,700	11,000	1,400
Computer/mathematical scientists	304,600	228,600	58,600	10,500	6,400	400	59,900	44,600	12,500	1,100	1,600	200
Computer scientists	256,600	188,400	55,000	8,000	5,000	200	26,300	18,200	7,100	200	700	100
Mathematical scientists	16,100	13,600	1,300	900	300	100	7,100	5,700	1,100	100	100	-
Postsecondary computer/ mathematics teachers	32,000	26,600	2,300	1,600	1,100	100	26,600	20,700	4,300	800	800	100
Life and related scientists	71,400	60,500	6,800	2,500	1,400	200	114,200	92,700	16,800	1,800	2,600	300
Agricultural/food scientists	11,000	10,000	600	100	200	-	10,000	8,400	1,300	100	200	-
Biological scientists	38,400	30,600	5,400	1,600	700	100	66,100	50,400	12,800	1,000	1,700	200
Environmental scientists	4,200	4,000	-	-	100	-	1,200	1,100	100	-	-	-
Postsecondary life science teachers	17,900	15,800	800	800	400	100	36,900	32,700	2,700	700	700	-
Physical and related scientists	70,100	58,100	8,000	1,600	1,900	300	84,900	69,100	12,300	1,400	1,900	200
Chemists	20,700	14,800	4,200	900	600	100	29,500	21,800	6,400	600	600	-
Earth/geology/oceanographers	23,400	20,700	1,300	400	1,000	100	10,700	9,200	1,100	100	300	100
Physicists and astronomers	9,100	7,600	1,300	100	100	100	15,200	12,700	2,200	100	200	-
Other physical scientists	7,100	6,500	300	100	100	-	1,400	1,200	200	-	-	-
Postsecondary physical science teachers	9,800	8,500	800	200	200	100	28,100	24,300	2,400	600	800	100
Social and related scientists	153,000	133,500	4,800	7,700	6,600	400	121,500	107,100	6,000	4,400	3,400	700
Economists	3,300	2,900	100	-	200	-	900	800	100	-	-	-
Political scientists	21,100	17,400	2,100	500	1,100	-	7,900	6,200	1,400	100	200	-
Psychologists	96,300	86,000	1,100	5,000	3,900	300	54,500	50,200	1,000	1,700	1,300	300
Sociologists/anthropologists	5,400	4,700	300	400	-	-	3,600	3,200	100	100	100	-
Other social scientists	3,700	3,300	100	200	100	-	2,700	2,300	100	200	-	-
Postsecondary social science teachers	23,300	19,100	1,200	1,500	1,300	100	51,900	44,300	3,300	2,300	1,700	300
Engineers	382,700	300,200	59,600	8,200	13,600	1,000	80,300	54,800	22,800	1,100	1,500	100
Aerospace engineers	27,600	23,800	2,400	600	600	100	4,400	3,200	1,100	-	-	-
Chemical engineers	20,400	15,600	3,700	300	800	-	7,300	5,000	2,200	-	100	-
Civil engineers	52,200	38,300	10,400	800	2,600	100	4,000	2,400	1,400	100	100	-
Electrical engineers	109,100	80,700	21,900	2,100	4,300	200	16,900	11,000	5,400	200	300	-
Industrial engineers	19,600	15,300	2,300	700	1,000	200	1,400	900	500	-	100	-
Mechanical engineers	62,900	49,000	10,200	1,800	1,500	300	9,100	5,400	3,500	100	100	-
Other engineers	81,200	70,000	7,400	1,700	2,000	100	17,900	12,400	5,100	100	300	100
Postsecondary engineering teachers	9,700	7,400	1,300	200	700	-	19,200	14,400	3,600	600	500	-

See explanatory information and SOURCE at end of table.

Appendix table 5-2. Scientists and engineers in the U.S. labor force, by occupation, race/ethnicity, and highest degree: 1997

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KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "professional and other degrees" and "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-3. Scientists and engineers in the U.S. labor force, by occupation, race/ethnicity, and sex: 1997

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Occupation	Total		White		Asian/Pacific Islander		Black		Hispanic		American Indian/ Alaskan Native	
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men
Total scientists and engineers	780,300	2,641,900	624,000	2,208,200	83,800	273,100	41,700	73,600	27,600	78,600	2,800	7,300
Computer/mathematical scientists	287,500	766,600	222,800	627,700	37,800	90,700	17,800	27,600	8,200	18,700	600	1,200
Computer scientists	250,500	695,900	192,600	569,600	35,000	83,000	15,500	25,100	6,900	17,200	500	1,000
Mathematical scientists	12,100	23,200	10,000	19,100	1,000	2,100	500	1,200	300	300	-	100
Postsecondary computer/ mathematics teachers	24,900	47,400	20,100	39,000	1,900	5,600	1,800	1,300	1,000	1,300	100	100
Life and related scientists	119,200	209,900	97,400	180,200	14,500	19,100	3,400	4,800	3,600	4,800	400	1,000
Agricultural/food scientists	11,000	32,800	10,000	29,000	500	2,100	100	1,000	300	600	-	-
Biological scientists	78,500	108,600	61,300	88,800	12,400	13,500	2,300	2,800	2,200	2,800	300	700
Environmental scientists	3,200	17,000	3,100	16,400	-	100	-	100	100	300	-	200
Postsecondary life science teachers	26,500	51,600	23,000	46,000	1,600	3,500	900	900	900	1,100	-	100
Physical and related scientists	63,400	226,000	48,500	195,000	8,900	19,500	3,300	5,200	2,400	5,500	200	800
Chemists	32,600	89,200	22,700	73,200	6,600	10,000	2,000	3,600	1,100	2,300	-	100
Earth/geology/oceanographers	11,200	58,600	9,700	53,300	400	3,200	600	400	400	1,500	100	200
Physicists and astronomers	3,100	28,700	2,500	24,500	400	3,300	100	300	-	600	-	100
Other physical scientists	5,600	11,700	5,100	10,800	100	500	200	-	200	200	-	200
Postsecondary physical science teachers	10,800	37,800	8,500	33,100	1,300	2,600	300	800	600	900	100	200
Social and related scientists	183,500	169,000	158,100	147,500	6,100	7,200	9,400	7,500	8,600	5,900	1,200	800
Economists	15,600	30,100	12,800	25,900	1,600	2,400	400	1,100	1,000	700	-	-
Political scientists	115,500	67,800	102,100	59,900	2,100	800	5,400	3,900	5,200	2,700	700	400
Psychologists	8,800	7,300	7,500	6,300	300	200	600	500	300	400	100	-
Sociologists/anthropologists	3,800	5,500	3,300	5,100	200	200	100	-	300	200	-	-
Other social scientists	7,400	4,700	6,100	4,400	400	100	500	100	200	-	100	100
Postsecondary social science teachers	32,300	53,600	26,400	45,900	1,700	3,600	2,400	1,900	1,600	1,900	200	300
Engineers	126,800	1,270,300	97,200	1,057,800	16,400	136,500	7,600	28,500	4,900	43,600	400	3,500
Aerospace engineers	5,700	68,000	4,300	58,100	700	5,700	400	1,900	200	1,700	-	500
Chemical engineers	10,600	66,800	7,800	54,800	1,800	8,000	700	1,100	300	2,800	-	100
Civil engineers	19,600	190,400	15,100	155,800	2,800	22,700	600	3,300	900	8,100	100	400
Electrical engineers	24,600	346,400	16,600	276,300	5,300	46,900	1,900	9,000	700	13,300	100	900
Industrial engineers	8,900	72,400	7,300	60,500	400	5,500	500	3,300	700	2,800	-	400
Mechanical engineers	16,600	257,900	13,300	220,700	1,700	24,500	1,100	5,000	400	6,700	-	900
Other engineers	37,600	237,300	30,200	208,200	3,300	17,700	2,400	3,900	1,600	7,000	100	400
Postsecondary engineering teachers	3,200	31,100	2,600	23,400	400	5,400	100	1,000	100	1,100	-	-

See explanatory information and SOURCE at end of table.

Appendix table 5-3. Scientists and engineers in the U.S. labor force, by occupation, race/ethnicity, and sex: 1997

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KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-4. Scientists and engineers in the labor force, by occupation, disability status, and highest degree: 1997

	All degrees		Bachelor's		Master's		Doctorate	
Occupation	Persons without disabilities	Persons with disabilities	Persons without disabilities	Persons with disabilities	Persons without disabilities	Persons with disabilities	Persons without disabilities	Persons with disabilities
Total scientists and engineers	3,231,000	191,200	1,840,300	108,400	929,900	52,000	433,000	27,900
Computer/mathematical scientists	999,900	54,100	650,500	35,300	290,100	14,500	56,300	3,700
Computer scientists	898,200	48,300	626,300	33,800	244,100	12,400	24,800	1,400
Mathematical scientists	33,900	1,400	12,000	200	15,200	900	6,700	400
Postsecondary computer/ mathematics teachers	67,800	4,400	12,200	1,300	30,700	1,200	24,700	1,900
Life and related scientists	309,700	19,500	121,500	6,700	66,900	4,600	107,800	6,400
Agricultural/food scientists	40,700	3,100	21,500	1,200	9,700	1,300	9,400	600
Biological scientists	178,600	8,500	71,400	3,900	37,000	1,400	63,200	2,900
Environmental scientists	18,500	1,700	13,500	1,100	3,700	400	1,100	100
Postsecondary life science teachers	71,900	6,200	15,100	400	16,500	1,400	34,100	2,800
Physical and related scientists	273,500	15,900	127,800	6,200	65,100	5,000	80,300	4,600
Chemists	115,600	6,200	67,600	4,000	19,700	1,000	28,300	1,200
Earth/geology/oceanographers	66,900	2,900	34,600	1,000	22,300	1,100	9,900	800
Physicists and astronomers	30,100	1,700	7,100	300	8,400	700	14,600	700
Other physical scientists	16,800	600	8,500	300	6,900	200	1,300	100
Postsecondary physical science teachers	44,100	4,500	10,100	600	7,700	2,100	26,300	1,800
Social and related scientists	330,600	21,800	65,100	3,700	143,600	9,400	113,200	8,400
Economists	43,000	2,800	15,100	1,400	20,500	700	7,200	700
Political scientists	9,200	200	5,100	-	3,200	100	900	-
Psychologists	172,600	10,600	25,000	1,200	89,800	6,500	51,700	2,800
Sociologists/anthropologists	15,000	1,000	6,600	400	4,900	500	3,400	200
Other social scientists	11,400	800	4,300	500	3,700	-	2,400	300
Postsecondary social science teachers	79,400	6,600	9,000	300	21,500	1,700	47,500	4,400
Engineers	1,317,200	79,900	875,300	56,400	364,200	18,500	75,400	4,800
Aerospace engineers	69,100	4,500	38,600	2,900	26,500	1,100	3,900	500
Chemical engineers	72,700	4,700	46,300	3,400	19,600	900	6,900	400
Civil engineers	194,500	15,400	141,600	11,500	48,800	3,400	3,600	400
Electrical engineers	351,400	19,700	231,100	12,900	103,300	5,800	16,100	800
Industrial engineers	75,900	5,500	55,400	4,700	18,700	800	1,400	-
Mechanical engineers	262,300	12,200	192,500	9,800	60,700	2,200	8,800	200
Other engineers	258,900	15,900	164,200	11,300	77,800	3,400	16,700	1,300
Postsecondary engineering teachers	32,400	1,900	5,500	-	8,900	700	18,000	1,100

KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "professional and other degrees" not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-5. Employed scientists and engineers, by sex, race/ethnicity, disability status, and age: 1997

Sex, race/ethnicity, and disability status	Total	Less than 35	35–44	45–54	55 or over
Total	3,369,300	977,200	1,118,000	832,900	440,900
Sex					
Women	763,300	269,500	267,800	168,900	57,000
Men	2,606,000	707,700	850,200	664,000	383,900
Race/ethnicity					
White, non-Hispanic	2,791,700	766,000	922,000	715,600	387,900
Asian/Pacific Islander	349,800	128,800	113,500	74,900	32,500
Black, non-Hispanic	113,000	39,400	41,200	24,000	8,400
Hispanic	103,500	39,300	37,000	16,700	10,600
American Indian/Alaskan Native	9,900	3,700	3,000	1,600	1,600
Other	1,400	-	1,200	100	-
Disability status					
Persons without disabilities	3,183,300	957,600	1,075,000	758,800	391,700
Persons with disabilities	186,000	19,600	43,000	74,100	49,200
	Percentage distribution:				
Total	100.0	29.0	33.2	24.7	13.1
Sex					
Women	100.0	35.3	35.1	22.1	7.5
Men	100.0	27.2	32.6	25.5	14.7
Race/ethnicity					
White, non-Hispanic	100.0	27.4	33.0	25.6	13.9
Asian/Pacific Islander	100.0	36.8	32.5	21.4	9.3
Black, non-Hispanic	100.0	34.9	36.4	21.3	7.4
Hispanic	100.0	37.9	35.8	16.1	10.2
American Indian/Alaskan Native	100.0	37.8	30.5	16.0	15.7
Other	100.0	3.1	87.6	9.3	-
Disability status					
Persons without disabilities	100.0	30.1	33.8	23.8	12.3
Persons with disabilities	100.0	10.6	23.1	39.8	26.5

KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Percentages are calculated from unrounded numbers. Details may not add to total because of rounding. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-6. Scientists and engineers with disabilities who are in the labor force, by age at onset of disability: 1997

Age at onset	Number	Percent
Total	191,200	100.0
Since birth	15,200	8.0
Younger than 10	18,100	9.5
10 to 19	29,100	15.2
20 to 29	24,000	12.5
30 to 39	27,800	14.5
40 to 49	50,900	26.6
50 or older	26,100	13.7

NOTE: Figures are rounded to nearest hundred. Percentages are calculated from unrounded numbers. Details may not add to total because of rounding. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-7. Employment status of scientists and engineers, by age, sex, and race/ethnicity: 1997

Occupation, sex, and race/ethnicity	Total	Employed				Unemployed/ seeking employment	Retired	Not employed/ not seeking employment
		Total	Full-time	Part-time	Postdoctoral appointment			
All ages	3,898,800	3,369,300	3,081,600	263,500	24,200	52,900	334,300	142,300
Women	898,400	763,300	628,000	126,700	8,600	17,000	30,400	87,600
Men	3,000,500	2,606,000	2,453,600	136,800	15,600	35,900	303,900	54,700
White	3,260,000	2,791,700	2,546,100	229,700	16,000	40,500	312,400	115,400
Asian/Pacific Islander	384,700	349,800	325,600	17,400	6,800	7,100	12,100	15,700
Black	126,600	113,000	104,900	7,500	600	2,200	5,100	6,200
Hispanic	114,900	103,500	94,500	8,200	800	2,700	4,300	4,300
American Indian/Alaskan Native	10,600	9,900	9,100	700	100	100	300	300
Younger than 35	1,049,700	977,200	883,400	81,000	12,800	12,900	900	58,700
Women	307,000	269,500	225,700	39,000	4,800	5,300	900	31,300
Men	742,700	707,700	657,700	42,000	8,000	7,600	-	27,300
White	816,900	766,000	692,800	64,500	8,700	8,100	900	41,900
Asian/Pacific Islander	140,700	128,800	115,600	9,700	3,500	2,600	-	9,400
Black	44,400	39,400	36,600	2,600	200	800	-	4,200
Hispanic	43,600	39,300	35,000	3,900	400	1,300	-	3,000
American Indian/Alaskan Native	3,900	3,700	3,400	300	-	-	-	200
35 to 44	1,175,400	1,118,000	1,047,800	60,800	9,400	11,800	2,200	43,300
Women	313,100	267,800	220,100	44,500	3,200	6,900	1,900	36,500
Men	862,200	850,200	827,800	16,200	6,200	4,900	300	6,800
White	970,900	922,000	863,800	52,600	5,700	9,100	2,000	37,700
Asian/Pacific Islander	118,600	113,500	106,100	4,400	3,000	1,900	-	3,200
Black	43,100	41,200	39,500	1,300	300	400	200	1,300
Hispanic	38,500	37,000	34,500	2,200	300	400	-	1,000
American Indian/Alaskan Native	3,200	3,000	2,800	200	-	100	-	100
45 to 54	872,200	832,900	786,300	45,300	1,300	11,300	4,800	23,200
Women	186,100	168,900	141,600	26,800	500	3,200	1,400	12,600
Men	686,000	664,000	644,700	18,400	900	8,100	3,400	10,600
White	749,600	715,600	673,500	41,200	900	9,000	4,300	20,600
Asian/Pacific Islander	78,000	74,900	73,400	1,100	300	1,000	200	2,000
Black	24,700	24,000	21,900	2,100	100	400	200	-
Hispanic	17,600	16,700	15,800	800	100	600	100	200
American Indian/Alaskan Native	1,600	1,600	1,500	100	-	-	-	-
55 or older	801,300	440,900	363,700	76,400	800	16,900	326,400	17,100
Women	92,000	57,000	40,500	16,400	200	1,500	26,200	7,200
Men	709,300	383,900	323,200	60,100	600	15,400	300,200	9,900
White	722,500	387,900	315,900	71,400	700	14,300	305,200	15,200
Asian/Pacific Islander	47,200	32,500	30,300	2,200	100	1,600	11,900	1,200
Black	14,400	8,400	7,000	1,400	-	600	4,800	700
Hispanic	15,200	10,600	9,200	1,400	-	400	4,200	100
American Indian/Alaskan Native	1,900	1,600	1,400	100	-	100	300	-

KEY: - = Fewer than 50 estimated

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

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Appendix table 5-8. Employment status of scientists and engineers, by occupation, sex, and race/ethnicity: 1997

Page 1 of 2

Occupation, sex, and race/ethnicity	Total	Employed				Unemployed/ seeking employment	Retired	Not employed/ not seeking employment
		Total	Full-time	Part-time	Postdoctoral appointment			
Scientists and engineers total	3,898,800	3,369,300	3,081,600	263,500	24,200	52,900	334,300	142,300
Women	898,400	763,300	628,000	126,700	8,600	17,000	30,400	87,600
White, non-Hispanic	725,500	611,300	494,200	111,500	5,600	12,700	27,300	74,200
Asian/Pacific Islander	91,400	81,500	72,600	6,600	2,400	2,300	1,300	6,400
Black, non-Hispanic	47,100	40,700	36,600	3,800	200	1,000	1,300	4,200
Hispanic	30,600	26,800	22,000	4,400	300	900	600	2,300
American Indian/Alaskan Native	2,900	2,800	2,400	300	-	-	-	100
Men	3,000,500	2,606,000	2,453,600	136,800	15,600	35,900	303,900	54,700
White, non-Hispanic	2,534,500	2,180,400	2,051,900	118,100	10,300	27,800	285,200	41,200
Asian/Pacific Islander	293,300	268,300	253,000	10,800	4,400	4,800	10,800	9,300
Black, non-Hispanic	79,400	72,300	68,200	3,700	400	1,300	3,900	2,000
Hispanic	84,300	76,700	72,500	3,800	500	1,900	3,700	2,000
American Indian/Alaskan Native	7,700	7,100	6,700	400	-	100	300	200
Computer and mathematical scientists								
Women	320,500	280,900	246,700	34,000	200	5,600	8,700	24,300
White, non-Hispanic	251,800	217,800	187,100	30,500	200	5,000	7,700	21,200
Asian/Pacific Islander	39,800	37,100	35,300	1,800	-	700	300	1,700
Black, non-Hispanic	19,100	17,600	16,600	1,000	-	200	500	800
Hispanic	8,900	7,700	7,100	600		500	200	600
American Indian/Alaskan Native	700	600	600	100		-	-	100
Men	809,200	758,600	726,900	31,100	600	8,000	31,300	11,400
White, non-Hispanic	665,300	621,600	594,900	26,300	400	6,100	29,100	8,600
Asian/Pacific Islander	93,800	89,400	86,400	2,800	200	1,300	1,400	1,700
Black, non-Hispanic	28,900	27,300	26,300	900		300	500	800
Hispanic	19,200	18,400	17,400	1,000	-	300	200	300
American Indian/Alaskan Native	1,200	1,200	1,200		-	-	100	-
Life and related scientists								
Women	144,500	115,900	94,800	15,000	6,100	3,300	6,200	19,100
White, non-Hispanic	117,200	95,200	78,600	12,900	3,800	2,100	5,000	14,900
Asian/Pacific Islander	16,800	13,800	10,500	1,300	2,000	700	400	1,800
Black, non-Hispanic	5,600	3,000	2,600	300	100	400	700	1,600
Hispanic	4,500	3,500	2,700	500	200	100	100	800
American Indian/Alaskan Native	400	400	400		-		-	-
Men	242,700	205,900	183,600	13,600	8,700	4,100	20,500	12,300
White, non-Hispanic	206,800	177,200	159,300	12,300	5,600	3,100	17,900	8,600
Asian/Pacific Islander	22,900	18,500	15,000	900	2,600	600	1,000	2,800
Black, non-Hispanic	5,800	4,800	4,300	200	200	-	800	100
Hispanic	6,300	4,500	4,100	100	200	300	700	800
American Indian/Alaskan Native	1,100	1,000	900	100	-	-		100

See explanatory information and SOURCE at end of table

Appendix table 5-8. Employment status of scientists and engineers, by occupation, sex, and race/ethnicity: 1997

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Occupation, sex, and race/ethnicity	Total	Employed				Unemployed/ seeking employment	Retired	Not employed/ not seeking employment
		Total	Full-time	Part-time	Postdoctoral appointment			
Physical and related scientists								
Women	79,100	61,800	52,300	8,800	700	1,600	5,600	10,200
White, non-Hispanic	62,400	47,300	39,500	7,400	400	1,100	5,200	8,700
Asian/Pacific Islander	9,900	8,700	7,600	900	300	200	200	800
Black, non-Hispanic	3,600	3,300	3,200	100	-	-	-	300
Hispanic	2,800	2,100	1,700	300	-	300	200	300
American Indian/Alaskan Native	200	200	100	100	-	-	-	-
Men	264,400	223,100	203,100	16,500	3,600	3,000	31,400	7,000
White, non-Hispanic	229,700	192,900	176,000	14,300	2,600	2,100	29,600	5,100
Asian/Pacific Islander	21,500	19,200	17,000	1,300	800	300	700	1,300
Black, non-Hispanic	6,300	5,100	4,700	400	-	100	800	400
Hispanic	6,000	5,200	4,700	300	100	400	300	200
American Indian/Alaskan Native	800	800	700	100	-	100	-	-
Social and related scientists								
Women	210,600	181,100	122,700	57,000	1,300	2,400	7,300	19,900
White, non-Hispanic	181,900	156,200	104,500	50,600	1,100	2,000	6,900	16,800
Asian/Pacific Islander	7,400	6,100	4,600	1,500	100	-	200	1,100
Black, non-Hispanic	10,800	9,100	6,900	2,100	100	300	-	1,400
Hispanic	9,000	8,500	5,800	2,600	100	-	200	200
American Indian/Alaskan Native	1,200	1,200	1,000	200	-	-	-	
Men	190,300	167,900	139,500	27,300	1,100	1,100	15,100	6,300
White, non-Hispanic	166,900	146,500	122,100	23,500	900	1,000	14,100	5,300
Asian/Pacific Islander	8,300	7,200	5,900	1,200	100	-	300	700
Black, non-Hispanic	8,200	7,500	6,200	1,200	-	-	600	100
Hispanic	6,100	5,900	4,500	1,200	100	-	100	100
American Indian/Alaskan Native	900	800	700	100	-	-	-	-
Engineers								
Women	143,600	123,700	111,400	12,000	300	3,100	2,600	14,100
White, non-Hispanic	112,300	94,800	84,500	10,100	200	2,400	2,400	12,600
Asian/Pacific Islander	17,500	15,800	14,600	1,200	-	600	200	900
Black, non-Hispanic	8,000	7,800	7,400	400	-	100	-	200
Hispanic	5,400	4,900	4,600	300	-	-	-	500
American Indian/Alaskan Native	400	400	400		-	-	-	-
Men	1,493,800	1,250,500	1,200,600	48,300	1,600	19,800	205,700	17,700
White, non-Hispanic	1,265,800	1,042,300	999,700	41,800	900	15,500	194,400	13,600
Asian/Pacific Islander	146,900	133,900	128,700	4,500	700	2,600	7,400	2,900
Black, non-Hispanic	30,300	27,700	26,700	900	-	900	1,200	500
Hispanic	46,700	42,800	41,600	1,100	-	800	2,500	600
American Indian/Alaskan Native	3,700	3,400	3,400	100	-	100	200	-

KEY: - = Fewer than 50 estimated

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-9. Scientists and engineers who are unemployed or out of the labor force, by reason for not working, sex, race/ethnicity, and disability status: 1997

		Sex		Race/ethnicity					Disability status	
Reason for not working	Total	Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Total[1]	529,600	135,100	394,500	468,300	34,900	13,600	11,400	700	437,500	92,000
Family responsibilities	59,200	51,900	7,300	51,700	4,000	1,000	2,100	-	56,100	3,100
Chronic illness or permanent disability	27,800	8,200	19,600	24,300	1,800	1,300	400	-	10,200	17,600
Suitable job not available	26,000	9,400	16,700	19,900	3,400	1,100	1,300	100	22,700	3,300
Did not need or want to work	76,400	41,000	35,400	65,100	6,700	3,100	1,500	100	70,900	5,500
Other reason	17,000	5,900	11,100	13,700	2,100	400	600	100	15,500	1,500
Retired	342,600	31,100	311,500	319,900	12,600	5,400	4,300	300	271,300	71,300
Student	61,000	25,000	36,000	41,700	11,300	4,600	3,200	200	58,800	2,200
On layoff from a job	25,700	8,800	16,900	21,000	2,800	700	1,200	100	23,400	2,300
	Percentage distribution									
Total[1]	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Family responsibilities	11.2	38.4	1.8	11.0	11.5	7.7	18.5	3.3	12.8	3.4
Chronic illness or permanent disability	5.3	6.1	5.0	5.2	5.2	9.7	3.3	0.5	2.3	19.2
Suitable job not available	4.9	6.9	4.2	4.3	9.8	7.9	11.6	11.5	5.2	3.6
Did not need or want to work	14.4	30.4	9.0	13.9	19.3	22.7	12.8	13.3	16.2	6.0
Other reason	3.2	4.3	2.8	2.9	6.0	3.3	5.6	9.4	3.5	1.6
Retired	64.7	23.0	79.0	68.3	36.2	39.7	38.1	41.6	62.0	77.5
Student	11.5	18.5	9.1	8.9	32.2	34.0	28.2	27.7	13.4	2.4
On layoff from a job	4.9	6.5	4.3	4.5	8.1	5.3	10.1	8.4	5.3	2.5

[1] Because of rounding and because respondents could select more than one reason, details will not add to totals.

KEY: - = Fewer than 50 estimated.

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Total includes "other" race/ethnicity not shown separately. Figures are rounded to nearest hundred. Percentages are calculated from unrounded numbers.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-10. Part-time employed scientists and engineers, by preference for full-time employment and reason for working part time, sex, race/ethnicity, and disability status: 1997

		Sex		Race/ethnicity					Disability status	
Preference for full-time and reason for part-time	Total	Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Total	264,400	127,300	137,100	230,400	17,600	7,500	8,200	700	243,400	21,000
Preference for full-time										
Did not want full-time	232,500	115,300	117,200	205,300	14,000	5,400	7,300	500	215,100	17,400
Wanted full-time	31,900	12,000	19,900	25,000	3,600	2,100	1,000	200	28,300	3,600
Reason for part-time										
Family responsibilities	70,100	56,000	14,100	63,000	3,300	1,300	2,400	100	66,500	3,700
Chronic illness or permanent disability	5,600	3,300	2,300	5,100	200	-	200	100	2,800	2,800
Did not need or want to work full-time	116,300	63,000	53,300	103,600	5,900	2,500	3,900	300	109,000	7,300
Suitable full-time job not available	37,000	16,000	21,000	29,600	3,600	2,000	1,500	200	33,700	3,300
Other reason	19,100	9,200	10,000	16,200	1,800	800	300	-	17,300	1,800
Retired	57,900	6,600	51,300	54,000	1,800	800	1,300	100	48,100	9,800
Student	77,700	32,300	45,500	60,300	10,400	2,900	3,800	200	75,200	2,500

KEY: - = Fewer than 50 estimated

NOTE: Figures are rounded to nearest hundred. Details will not add to total because of rounding and because respondents could select more than one reason. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Total includes "other" race/ethnicity not shown separately.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-11. Employment status of scientists and engineers, by age and disability status: 1997

Age and disability status	Total	Employed				Unemployed/ seeking employment	Retired	Not employed/ not seeking employment
		Total	Full-time	Part time	Postdoctoral appointment			
All ages								
Persons without disabilities	3,620,900	3,183,300	2,917,200	242,500	23,500	47,700	264,000	125,900
Persons with disabilities	278,000	186,000	164,300	21,000	700	5,200	70,300	16,400
Younger than 35								
Persons without disabilities	1,028,100	957,600	865,600	79,400	12,500	12,400	900	57,200
Persons with disabilities	21,600	19,600	17,800	1,600	200	500	-	1,500
35 to 44								
Persons without disabilities	1,127,900	1,075,000	1,008,000	57,800	9,200	11,200	1,900	39,800
Persons with disabilities	47,500	43,000	39,800	3,000	200	600	300	3,500
45 to 54								
Persons without disabilities	791,100	758,800	716,800	40,700	1,200	9,300	3,900	19,100
Persons with disabilities	81,000	74,100	69,500	4,500	100	1,900	900	4,100
55 or older								
Persons without disabilities	673,500	391,700	326,500	64,600	600	14,700	257,200	9,800
Persons with disabilities	127,800	49,200	37,300	11,800	100	2,200	69,100	7,300
	Percentage distribution							
All ages								
Persons without disabilities	100.0	87.9	80.6	6.7	0.7	1.3	7.3	3.5
Persons with disabilities	100.0	66.9	59.1	7.5	0.2	1.9	25.3	5.9
Younger than 35								
Persons without disabilities	100.0	93.1	84.2	7.7	1.2	1.2	0.1	5.6
Persons with disabilities	100.0	90.8	82.3	7.4	1.1	2.2	0.0	7.0
35 to 44								
Persons without disabilities	100.0	95.3	89.4	5.1	0.8	1.0	0.2	3.5
Persons with disabilities	100.0	90.6	83.9	6.3	0.4	1.3	0.7	7.4
45 to 54								
Persons without disabilities	100.0	95.9	90.6	5.1	0.2	1.2	0.5	2.4
Persons with disabilities	100.0	91.4	85.7	5.6	0.1	2.4	1.1	5.1
55 or older								
Persons without disabilities	100.0	58.2	48.5	9.6	0.1	2.2	38.2	1.5
Persons with disabilities	100.0	38.5	29.1	9.3	0.1	1.7	54.1	5.7

KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Percentages are calculated from unrounded numbers. Details may not add to total because of rounding. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-12. Employed scientists and engineers, by occupation, employment sector, sex, race/ethnicity, and disability status: 1997

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Occupation and employment sector	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Scientists and engineers total	3,369,300	763,300	2,606,000	2,791,700	349,800	113,000	103,500	9,900	3,105,400	186,000
Elementary, middle, or secondary school	37,200	22,900	14,300	32,600	700	1,900	1,900	200	34,800	2,300
2-year college	59,500	24,100	35,300	52,200	2,100	2,900	2,100	200	54,000	5,100
4-year college or university	252,300	70,200	182,200	203,700	29,900	8,100	9,500	1,000	235,700	14,400
Medical school	47,500	19,500	28,000	37,800	6,800	1,200	1,400	300	45,900	1,500
University research institute	36,900	11,400	25,500	28,100	6,000	1,000	1,600	200	34,700	1,800
Other educational institution	14,400	6,300	8,000	12,000	1,100	900	300	-	13,500	900
Combined 4-year, medical school, or research institute [1]	138,800	49,300	89,600	116,400	13,800	3,800	4,600	100	127,100	10,500
Private-for-profit	2,001,300	355,100	1,646,200	1,653,500	225,700	60,200	57,000	4,700	1,850,600	99,000
Private-not-for-profit	107,000	47,200	59,800	91,200	7,600	3,800	3,500	800	100,300	6,200
Self-employed, not incorporated	110,100	36,900	73,200	102,300	4,300	1,000	2,200	300	99,000	7,600
Self-employed, incorporated	77,500	12,700	64,800	68,700	6,000	1,600	1,000	100	68,500	6,300
Local government	68,200	18,600	49,600	49,600	11,100	2,900	4,100	400	61,600	4,300
State government	120,300	30,300	90,000	96,200	10,900	8,300	3,800	600	107,100	9,100
U.S. Military	23,200	2,800	20,300	18,900	2,200	900	1,100	100	22,500	400
U.S. Government	227,400	47,600	179,800	188,600	17,900	12,300	7,600	800	205,900	14,600
Other non-educational institution	47,700	8,300	39,300	39,900	3,700	2,100	1,700	200	44,300	2,000
Computer and mathematical scientists, total	1,039,500	280,900	758,600	839,400	126,600	44,900	26,200	1,800	986,900	52,500
Elementary, middle, or secondary school	4,500	1,500	2,900	3,500	200	400	500	-	4,500	-
2-year college	24,200	10,000	14,200	20,700	1,200	1,400	900	-	22,900	1,300
4-year college or university	38,500	9,300	29,200	29,600	6,200	1,400	1,200	200	36,100	2,400
Medical school	2,700	1,000	1,700	1,900	400	200	200	-	2,600	100
University research institute	4,100	1,300	2,700	2,800	1,100	-	200	-	3,900	200
Other educational institution	4,300	1,600	2,700	3,900	400	-	-	-	3,900	400
Combined 4-year, medical school, or research institute [1]	43,000	17,500	25,400	37,100	2,900	1,400	1,400	-	41,300	1,700
Private-for-profit	727,500	185,500	541,900	580,900	98,800	29,400	17,300	1,200	692,900	34,600
Private-not-for-profit	32,000	13,400	18,600	28,000	2,200	800	800	200	29,600	2,400
Self-employed, not incorporated	25,100	5,400	19,700	22,600	1,800	300	300	100	24,000	1,100
Self-employed, incorporated	29,300	4,300	25,000	25,800	2,700	500	300	-	26,800	2,500
Local government	12,800	5,500	7,300	9,300	1,900	700	900	-	12,000	800
State government	23,300	7,400	15,900	17,300	1,900	3,100	400	100	21,900	1,500
U.S. Military	4,300	600	3,700	3,100	700	200	300	-	4,300	-
U.S. Government	49,000	12,800	36,100	40,900	2,900	4,000	1,200	-	45,700	3,300
Other non-educational institution	15,100	3,700	11,400	12,000	1,200	1,200	600	100	14,600	500

See explanatory information and SOURCE at end of table.

Appendix table 5-12. Employed scientists and engineers, by occupation, employment sector, sex, race/ethnicity, and disability status: 1997

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Occupation and employment sector	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Life and related scientists, total	321,800	115,900	205,900	272,400	32,300	7,700	8,000	1,400	303,100	18,700
Elementary, middle, or secondary school	700	500	100	500	-	-	100	-	500	100
2-year college	12,500	6,500	6,000	11,500	200	200	600	100	11,200	1,400
4-year college or university	52,400	17,600	34,800	44,500	5,100	1,200	1,400	200	49,500	2,900
Medical school	32,700	12,500	20,200	25,900	5,000	700	800	300	31,700	1,000
University research institute	9,700	3,800	6,000	7,500	1,400	100	700	-	8,900	900
Other educational institution	2,200	500	1,700	1,900	300	-	-	-	2,200	-
Combined 4-year, medical school, or research institute [1]	44,300	18,900	25,500	36,100	6,000	900	1,300	-	41,300	3,100
Private-for-profit	76,400	27,100	49,300	64,200	8,500	2,400	1,200	100	71,700	4,700
Private-not-for-profit	13,300	6,300	6,900	11,400	1,400	200	200	-	12,600	600
Self-employed, not incorporated	8,000	2,100	5,900	7,800	100	-	-	-	7,700	300
Self-employed, incorporated	3,700	700	2,900	3,500	100	-	-	-	3,400	200
Local government	6,700	2,400	4,300	4,500	1,000	400	500	200	6,500	200
State government	20,000	6,400	13,600	18,700	600	200	300	300	18,500	1,500
U.S. Military	2,000	700	1,300	1,800	200	-	100	-	2,000	-
U.S. Government	35,900	9,600	26,400	31,300	2,300	1,300	800	200	34,100	1,800
Other non-educational institution	1,300	400	900	1,200	100	-	-	-	1,300	-
Physical and related scientists, total	284,900	61,800	223,100	240,200	27,900	8,400	7,200	900	269,200	15,700
Elementary, middle, or secondary school	800	200	600	600	200	-	-	-	800	-
2-year college	7,300	2,400	5,000	6,700	300	200	100	100	6,100	1,300
4-year college or university	45,600	9,100	36,500	38,200	4,800	900	1,500	200	43,500	2,100
Medical school	2,000	400	1,600	1,300	500	-	100	-	1,900	100
University research institute	8,900	1,600	7,300	7,100	1,200	400	200	100	8,600	300
Other educational institution	700	300	400	700	-	-	-	-	600	100
Combined 4-year, medical school, or research institute [1]	14,600	2,800	11,800	12,900	1,200	100	500	-	12,100	2,400
Private-for-profit	137,100	30,700	106,400	114,300	14,900	4,100	3,400	400	131,100	6,000
Private-not-for-profit	5,100	1,300	3,800	4,200	700	-	200	-	4,900	200
Self-employed, not incorporated	6,200	400	5,800	5,700	300	-	100	-	5,900	300
Self-employed, incorporated	4,400	500	3,900	4,100	200	100	-	-	4,300	100
Local government	5,300	1,500	3,800	3,900	800	400	-	100	5,100	200
State government	12,900	2,900	10,000	10,800	900	800	300	-	12,100	800
U.S. Military	2,600	400	2,200	2,300	-	200	100	-	2,600	-
U.S. Government	27,900	6,800	21,100	23,900	1,900	1,200	800	-	26,100	1,800
Other non-educational institution	3,300	300	3,000	3,300	100	-	-	-	3,300	-

See explanatory information and SOURCE at end of table.

Appendix table 5-12. Employed scientists and engineers, by occupation, employment sector, sex, race/ethnicity, and disability status: 1997

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Occupation and employment sector	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Social and related scientists, total	349,000	181,100	167,900	302,600	13,300	16,500	14,400	2,000	327,800	21,200
Elementary, middle, or secondary school	30,300	20,700	9,600	27,200	200	1,500	1,300	200	28,100	2,200
2-year college	10,000	4,800	5,200	8,400	100	900	500	100	9,200	800
4-year college or university	76,900	29,900	47,000	64,300	5,000	3,300	3,900	400	72,000	4,900
Medical school	8,200	5,300	3,000	7,300	300	300	300	-	7,900	300
University research institute	6,600	3,800	2,800	5,400	500	300	200	100	6,300	300
Other educational institution	6,100	3,800	2,300	5,000	200	700	200	-	5,700	400
Combined 4-year, medical school, or research institute [1]	19,000	8,900	10,100	15,300	1,600	900	1,100	100	16,800	2,200
Private-for-profit	53,300	26,900	26,300	47,800	2,200	1,300	1,900	100	51,300	2,000
Private-not-for-profit	39,400	25,300	14,100	33,300	1,000	2,700	1,900	600	37,000	2,400
Self-employed, not incorporated	41,700	27,200	14,500	40,100	300	600	500	200	39,400	2,400
Self-employed, incorporated	10,500	4,900	5,600	10,000	100	300	-	-	9,800	700
Local government	8,000	5,400	2,600	6,800	100	300	800	-	7,200	800
State government	17,000	6,800	10,100	13,200	700	2,300	700	100	15,700	1,200
U.S. Military	1,100	400	700	900	-	-	200	-	1,100	-
U.S. Government	16,800	5,900	10,900	14,900	500	900	400	100	16,000	800
Other non-educational institution	4,200	1,100	3,100	2,800	600	400	500	-	4,200	-
Engineers, total	1,374,200	123,700	1,250,500	1,137,200	149,700	35,400	47,700	3,800	1,218,500	77,900
Elementary, middle, or secondary school	900	-	900	800	100	-	-	-	900	-
2-year college	5,400	500	4,900	4,900	200	100	100	-	4,600	400
4-year college or university	39,000	4,300	34,700	27,100	8,800	1,400	1,600	100	34,600	2,200
Medical school	1,900	300	1,600	1,300	500	-	-	-	1,800	-
University research institute	7,700	900	6,700	5,300	1,800	200	400	-	7,000	300
Other educational institution	1,000	-	1,000	500	200	200	100	-	1,000	-
Combined 4-year, medical school, or research institute [1]	18,000	1,200	16,800	15,000	2,200	500	300	-	15,600	1,200
Private-for-profit	1,007,100	84,800	922,200	846,300	101,400	23,000	33,300	2,900	903,500	51,800
Private-not-for-profit	17,200	800	16,400	14,300	2,300	200	400	100	16,100	500
Self-employed, not incorporated	29,100	1,800	27,300	26,100	1,800	-	1,200	100	22,000	3,500
Self-employed, incorporated	29,700	2,300	27,400	25,300	2,900	700	700	-	24,200	2,800
Local government	35,500	3,800	31,700	25,100	7,300	1,200	1,900	-	30,800	2,400
State government	47,200	6,800	40,400	36,200	6,900	1,800	2,200	100	39,000	4,100
U.S. Military	13,200	800	12,400	10,800	1,200	600	400	100	12,500	300
U.S. Government	97,800	12,500	85,300	77,500	10,300	4,900	4,500	500	83,900	6,900
Other non-educational institution	23,700	2,800	20,900	20,700	1,800	600	600	100	20,800	1,400

See explanatory information and SOURCE at end of table.

Appendix table 5-12. Employed scientists and engineers, by occupation, employment sector, sex, race/ethnicity, and disability status: 1997

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[1] Data from the National Survey of College Graduates available only in the combined category due to reasons of confidentiality.

KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-13. Scientists and engineers employed in academic institutions, by institutional type, highest degree, sex, race/ethnicity, and disability status: 1997

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Highest degree and type of institution	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
All degrees	586,600	203,700	382,800	482,800	60,400	19,800	21,400	1,900	549,900	36,700
Primary school	19,800	13,300	6,500	17,400	200	1,000	1,100	100	18,800	1,000
Secondary school	17,400	9,600	7,800	15,200	500	900	800	100	16,000	1,400
2-year college	59,500	24,100	35,300	52,200	2,100	2,900	2,100	200	54,400	5,100
4-year college or university	252,300	70,200	182,200	203,700	29,900	8,100	9,500	1,000	237,900	14,400
Medical school	47,500	19,500	28,000	37,800	6,800	1,200	1,400	300	46,000	1,500
Research institute	36,900	11,400	25,500	28,100	6,000	1,000	1,600	200	35,000	1,900
Other	14,400	6,300	8,000	12,000	1,100	900	300	-	13,500	900
Combined 4-year, medical school, or research institute	138,800	49,300	89,600	116,400	13,800	3,800	4,600	100	128,300	10,500
Bachelor's	155,800	63,800	92,000	129,400	13,100	5,000	7,700	700	148,200	7,600
Primary school	3,400	1,900	1,500	2,800	100	300	200	-	3,400	-
Secondary school	4,000	1,800	2,200	3,500	200	100	200	100	3,900	100
2-year college	13,900	5,800	8,100	12,400	500	800	300	-	13,200	700
4-year college or university	65,800	26,200	39,500	53,100	6,100	2,100	4,100	400	64,000	1,800
Medical school	9,000	5,200	3,800	7,700	500	300	300	200	8,600	400
Research institute	11,400	4,400	6,900	9,300	1,100	400	600	-	10,600	700
Other	3,700	1,300	2,400	2,400	500	500	300	-	3,500	200
Combined 4-year, medical school, or research institute	44,600	17,100	27,500	38,300	4,100	600	1,700	-	40,800	3,800
Master's	182,500	76,400	106,100	149,400	17,600	8,300	6,400	500	170,700	11,800
Primary school	13,900	9,600	4,400	12,400	-	700	800	100	13,100	800
Secondary school	10,800	6,700	4,100	9,500	200	700	400	-	9,600	1,200
2-year college	36,600	15,200	21,400	32,100	900	1,800	1,700	200	33,000	3,600
4-year college or university	43,700	13,500	30,200	32,000	7,900	1,900	1,600	200	41,400	2,300
Medical school	4,800	2,600	2,200	3,200	1,200	300	100	100	4,800	-
Research institute	7,800	3,000	4,700	4,600	2,400	400	400	-	7,600	100
Other	7,900	3,800	4,000	7,500	200	200	-	-	7,700	200
Combined 4-year, medical school, or research institute	57,100	21,900	35,100	48,200	4,800	2,400	1,400	-	53,500	3,600

See explanatory information and SOURCE at end of table.

Appendix table 5-13. Scientists and engineers employed in academic institutions, by institutional type, highest degree, sex, race/ethnicity, and disability status: 1997

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Highest degree and type of institution	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Doctorate	235,500	60,500	175,000	192,500	28,900	6,300	6,900	800	219,900	15,600
Primary school	1,700	1,100	600	1,500	100	100	100	-	1,600	100
Secondary school	2,300	900	1,400	2,000	100	-	200	-	2,200	100
2-year college	8,200	3,200	5,100	7,000	700	300	100	-	7,600	600
4-year college or university	142,800	30,300	112,500	118,500	15,900	4,100	3,800	400	132,400	10,400
Medical school	33,200	11,500	21,700	26,500	5,000	600	1,000	100	32,100	1,100
Research institute	17,700	3,900	13,800	14,200	2,500	300	600	100	16,700	1,000
Other	2,500	1,100	1,400	1,800	400	200	-	-	2,100	400
Combined 4-year, medical school, or research institute	27,000	8,400	18,600	21,100	4,200	600	1,000	100	25,200	1,800

KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "professional and other degrees" and "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-14. Science and engineering Ph.D. faculty employed full time in academic institutions, by Carnegie classification of academic institution, sex, and race/ethnicity: 1995

Carnegie classification	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
	Number									
Total	174,600	36,600	138,000	149,400	15,100	4,700	4,600	800	164,900	9,700
Research University I	64,100	12,500	51,600	55,100	6,000	1,300	1,500	200	61,200	2,900
Research University II	15,500	2,700	12,700	13,300	1,500	200	400	100	14,400	1,100
Doctorate Granting I	9,800	1,900	7,900	8,200	900	400	200	100	9,100	700
Doctorate Granting II	11,900	2,100	9,800	10,100	1,100	300	400	-	11,100	800
Comprehensive I	33,600	7,400	26,100	28,000	2,900	1,500	1,000	200	31,300	2,200
Comprehensive II	2,700	700	2,100	2,400	200	100	100	-	2,600	100
Liberal Arts	14,800	3,600	11,200	13,300	800	400	200	-	13,900	900
Two-Year Institutions	4,200	1,100	3,100	3,600	300	200	100	-	4,000	200
Medical schools and medical centers	8,700	2,700	6,000	7,600	600	200	300	100	8,200	400
Other specialized institutions	2,800	500	2,300	2,400	300	-	100	-	2,700	100
Missing	6,500	1,300	5,300	5,400	700	100	200	-	6,300	300
	Percent[1]									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Research University I	38.1	35.4	38.9	38.3	41.7	28.3	34.1	25.0	38.6	30.9
Research University II	9.2	7.6	9.6	9.2	10.4	4.3	9.1	12.5	9.1	11.7
Doctorate Granting I	5.8	5.4	6.0	5.7	6.3	8.7	4.5	12.5	5.7	7.4
Doctorate Granting II	7.1	5.9	7.4	7.0	7.6	6.5	9.1	*	7.0	8.5
Comprehensive I	20.0	21.0	19.7	19.4	20.1	32.6	22.7	25.0	19.7	23.4
Comprehensive II	1.6	2.0	1.6	1.7	1.4	2.2	2.3	*	1.6	1.1
Liberal Arts	8.8	10.2	8.4	9.2	5.6	8.7	4.5	*	8.8	9.6
Two-Year Institutions	2.5	3.1	2.3	2.5	2.1	4.3	2.3	*	2.5	2.1
Medical schools and medical centers	5.2	7.6	4.5	5.3	4.2	4.3	6.8	12.5	5.2	4.3
Other specialized institutions	1.7	1.4	1.7	1.7	2.1	*	2.3	*	1.7	1.1

[1] Percentages based on cases where Carnegie classification is known.

KEY:
- = Fewer than 50 estimated.
* = Cannot be calculated.

NOTE: Figures are rounded to nearest hundred. Percentages are calculated from unrounded numbers. Details may not add to total because of rounding. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1995 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-15. Full-time ranked doctoral scientists and engineers at 4-year colleges and universities, by rank, years since doctorate, sex, race/ethnicity, and disability status: 1997

Years since doctorate and rank	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Total	143,200	27,900	115,300	120,600	14,100	3,800	4,000	900	132,900	10,300
Professor	65,100	6,800	58,300	57,200	5,200	1,200	1,300	300	58,900	6,300
Associate professor	41,600	9,100	32,500	35,000	3,700	1,300	1,400	200	38,700	2,900
Assistant professor	36,500	12,000	24,500	28,400	5,200	1,300	1,400	100	35,400	1,100
Less than 10	43,400	13,100	30,300	33,100	6,700	1,600	1,800	100	42,100	1,400
Professor	1,400	400	1,100	900	500	100	-	-	1,400	-
Associate professor	11,600	2,800	8,900	9,000	1,600	400	600	-	11,200	500
Assistant professor	30,400	10,000	20,400	23,200	4,700	1,100	1,200	100	29,500	900
10 to 19	42,600	9,200	33,500	36,400	3,700	1,100	1,300	100	39,800	2,800
Professor	17,200	2,500	14,600	14,600	1,700	400	500	-	15,700	1,500
Associate professor	20,500	4,900	15,600	17,600	1,600	600	700	100	19,300	1,300
Assistant professor	4,900	1,700	3,200	4,100	500	200	100	-	4,800	100
20 to 29	41,700	4,900	36,700	37,200	2,500	900	800	200	37,600	4,000
Professor	32,900	3,400	29,500	29,400	2,100	600	600	200	30,000	3,000
Associate professor	7,700	1,300	6,500	6,900	300	300	200	-	6,700	1,000
Assistant professor	1,000	300	700	800	100	-	-	-	900	100
30 or more	15,500	700	14,800	14,000	1,200	100	100	100	13,400	2,000
Professor	13,600	500	13,100	12,300	1,000	100	100	100	11,800	1,800
Associate professor	1,700	200	1,500	1,600	100	-	-	-	1,500	200
Assistant professor	100	-	100	100	-	-	-	-	100	-

KEY: - = Fewer than 50 estimated

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-16. Full-time doctoral scientists and engineers at 4-year colleges and universities, by tenure status, years since doctorate, sex, race/ethnicity, and disability status: 1997

Years since doctorate and tenure	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Total	179,200	39,800	139,400	147,500	21,400	4,600	5,000	600	167,600	11,600
Tenured	97,300	13,900	83,400	84,400	8,000	2,100	2,400	400	88,500	8,800
On tenure track, not tenured	30,700	9,500	21,200	23,700	4,200	1,300	1,400	100	29,800	900
Not on tenure track	19,300	6,300	13,000	14,700	3,600	300	600	-	18,600	700
No tenure system at institution/ for my position	31,900	10,100	21,800	24,700	5,600	800	800	100	30,700	1,200
Less than 10	69,400	22,500	46,900	51,100	13,200	2,200	2,600	200	67,400	2,000
Tenured	10,900	2,600	8,300	8,400	1,700	300	400	-	10,400	500
On tenure track, not tenured	24,900	7,900	17,100	18,800	3,700	1,100	1,200	100	24,200	700
Not on tenure track	12,700	4,400	8,300	9,100	3,000	300	400	-	12,400	300
No tenure system at institution/ for my position	20,800	7,600	13,200	14,800	4,800	600	600	-	20,300	500
10 to 19	48,500	10,800	37,800	41,300	4,400	1,300	1,400	100	45,300	3,300
Tenured	33,500	6,300	27,200	28,600	2,900	900	1,000	100	30,900	2,600
On tenure track, not tenured	4,800	1,500	3,300	4,000	400	200	100	-	4,700	100
Not on tenure track	4,100	1,300	2,800	3,500	400	100	200	-	3,900	200
No tenure system at institution/ for my position	6,200	1,700	4,500	5,300	600	200	100	-	5,800	300
20 to 29	45,000	5,800	39,200	40,300	2,700	900	900	200	40,800	4,200
Tenured	38,400	4,400	34,000	34,300	2,300	800	800	200	34,600	3,800
On tenure track, not tenured	900	200	700	800	-	-	-	-	800	100
Not on tenure track	1,900	500	1,400	1,700	200	-	-	-	1,800	100
No tenure system at institution/ for my position	3,800	700	3,000	3,600	100	-	-	-	3,500	300
30 or more	16,300	800	15,500	14,800	1,200	100	100	100	14,200	2,100
Tenured	14,500	600	13,900	13,200	1,100	100	100	100	12,600	1,900
On tenure track, not tenured	100	-	100	100	-	-	-	-	100	-
Not on tenure track	500	100	400	500	-	-	-	-	400	100
No tenure system at institution/ for my position	1,200	100	1,000	1,000	100	-	-	-	1,000	100

KEY: - = Fewer than 50 estimated

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-17. Percentage of full-time ranked doctoral scientists and engineers employed in 4-year colleges or universities who are supported by Federal grants or contracts, by occupation, sex, race/ethnicity, and disability status: 1997

Occupation	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Total science and engineering	37.2	34.1	37.9	36.9	42.4	28.8	36.9	22.5	37.8	29.3
Computer/mathematical sciences	23.7	25.2	23.5	22.3	29.8	22.4	28.0	13.8	24.8	10.1
Life and related sciences	55.1	55.2	55.1	54.8	59.3	34.2	67.8	37.7	55.8	46.2
Physical and related sciences	43.3	36.6	44.2	43.3	37.5	50.6	50.9	34.1	44.0	31.1
Social and related sciences	17.3	19.7	16.3	17.7	13.1	20.6	11.5	11.5	17.3	18.3
Engineering	50.6	45.5	50.9	48.6	61.2	41.2	43.2	34.2	51.4	39.4

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Total includes "other" race/ethnicity not shown separately.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-18. Full-time doctoral scientists and engineers in 4-year colleges or universities, by academic rank, sex, and race/ethnicity: 1997

Sex and rank	Total	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native
Both sexes						
Total	179,100	147,400	21,400	4,600	5,000	600
Professor	65,100	57,200	5,200	1,200	1,300	300
Associate professor	41,600	35,000	3,700	1,300	1,400	200
Assistant professor	36,400	28,300	5,200	1,300	1,400	100
Instructor	2,700	1,800	600	100	100	-
Lecturer	2,200	1,900	200	-	100	-
Adjunct faculty	2,900	2,500	300	-	100	-
Other	200	100	-	-	-	-
Not applicable at this institution/ for my position	28,100	20,400	6,200	600	800	-
Women						
Total	39,800	32,200	4,600	1,400	1,400	100
Professor	6,800	6,100	500	100	100	-
Associate professor	9,100	7,800	500	400	400	-
Assistant professor	12,000	9,500	1,300	600	500	-
Instructor	1,200	1,000	100	-	-	-
Lecturer	900	800	100	-	-	-
Adjunct faculty	1,000	900	100	-	-	-
Other	100	100	-	-	-	-
Not applicable at this institution/ for my position	8,800	6,200	2,000	300	300	-
Men						
Total	139,400	115,200	16,800	3,200	3,700	500
Professor	58,300	51,100	4,700	1,000	1,200	300
Associate professor	32,500	27,200	3,200	1,000	1,000	100
Assistant professor	24,400	18,800	3,900	700	900	100
Instructor	1,500	900	500	100	100	-
Lecturer	1,300	1,100	100	-	-	-
Adjunct faculty	1,900	1,700	200	-	-	-
Other	100	100	-	-	-	-
Not applicable at this institution/ for my position	19,300	14,300	4,200	400	500	-

KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-19. Full-time doctoral scientists and engineers in 4-year colleges or universities, by sex, race/ethnicity, and tenure: 1997

Sex and rank	Total	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native
Both sexes						
Total	179,100	147,400	21,400	4,600	5,000	600
Tenured	97,300	84,400	8,000	2,100	2,400	400
On tenure track but not tenured	30,700	23,700	4,200	1,300	1,400	100
Not on tenure track	19,300	14,700	3,600	300	600	-
No tenure system at this institution/ for my position	31,900	24,600	5,600	800	800	100
Women						
Total	39,800	32,200	4,600	1,400	1,400	100
Tenured	13,900	12,200	800	400	400	-
On tenure track but not tenured	9,500	7,500	1,000	500	400	-
Not on tenure track	6,300	4,900	1,000	100	200	-
No tenure system at this institution/for my position	10,100	7,600	1,800	400	300	-
Men						
Total	139,400	115,200	16,800	3,200	3,700	500
Tenured	83,400	72,200	7,200	1,700	1,900	400
On tenure track but not tenured	21,100	16,100	3,200	800	900	100
Not on tenure track	13,000	9,800	2,700	200	300	-
No tenure system at this institution/for my position	21,800	17,000	3,800	400	500	-

KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Total includes "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-20. Scientists and engineers employed in business or industry, by primary or secondary work activity, age, sex, race/ethnicity, and disability status: 1997

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Primary or secondary work activity and age	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Total	2,343,600	460,200	1,883,400	1,955,600	247,400	68,700	65,500	6,100	2,222,600	121,000
Research and development	1,299,200	209,300	1,089,900	1,077,400	150,700	34,700	33,400	2,800	1,235,300	63,900
Teaching	62,000	21,700	40,300	53,500	3,200	3,100	2,000	200	57,900	4,100
Management/ administration	1,080,500	200,100	880,400	926,300	91,400	28,000	31,900	2,800	1,027,400	53,100
Computer applications	987,600	210,300	777,300	793,100	129,600	35,600	26,400	2,900	940,300	47,200
Other	443,600	114,000	329,500	387,800	28,900	12,000	12,900	2,000	415,700	27,900
Younger than age 35	695,400	164,500	531,000	546,300	95,600	26,900	24,400	2,200	682,200	13,200
Research and development	396,200	84,800	311,400	308,800	57,600	15,100	13,700	1,000	387,800	8,400
Teaching	14,800	6,100	8,700	11,500	1,400	1,100	800	-	14,700	100
Management/ administration	314,000	75,800	238,200	255,300	35,100	10,800	11,900	900	307,700	6,300
Computer applications	327,800	74,300	253,500	246,700	55,900	14,300	9,500	1,400	322,300	5,500
Other	91,900	29,600	62,300	75,100	8,500	3,300	4,400	600	90,500	1,300
Age 35 to 44	827,100	171,500	655,600	695,000	79,500	26,100	24,600	1,700	794,500	32,600
Research and development	468,500	77,800	390,700	392,900	49,200	12,900	12,300	900	451,500	17,000
Teaching	16,700	4,900	11,800	13,700	1,000	1,300	600	100	15,700	1,100
Management/ administration	381,400	76,600	304,800	331,700	26,200	11,000	11,900	700	366,000	15,500
Computer applications	378,300	85,000	293,300	308,100	45,000	13,200	11,200	800	362,800	15,500
Other	138,200	36,800	101,400	120,400	9,300	4,000	3,800	700	132,400	5,800
Age 45 to 54	544,500	93,800	450,700	467,800	52,800	12,200	10,800	1,000	496,300	48,300
Research and development	281,700	35,600	246,100	240,700	31,700	4,700	4,300	200	258,000	23,800
Teaching	19,300	8,200	11,000	17,200	700	700	600	-	17,400	1,800
Management/ administration	263,400	39,100	224,300	231,600	21,100	4,700	5,300	700	241,800	21,600
Computer applications	211,500	41,400	170,100	177,800	22,700	6,500	4,300	300	191,000	20,500
Other	130,700	31,600	99,000	116,600	6,800	3,700	3,100	500	119,500	11,200

See explanatory information and SOURCE at end of table.

Appendix table 5-20. Scientists and engineers employed in business or industry, by primary or secondary work activity, age, sex, race/ethnicity, and disability status: 1997

Page 2 of 2

Primary or secondary work activity and age	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Age 55 or older	276,200	30,300	245,900	246,400	19,400	3,500	5,800	1,100	249,300	26,900
Research and development	152,500	11,000	141,500	134,800	12,000	2,000	3,100	700	137,700	14,800
Teaching	11,200	2,500	8,800	11,100	100	-	-	100	10,100	1,100
Management/ administration	121,600	8,600	113,000	107,700	9,000	1,500	2,800	600	111,900	9,700
Computer applications	69,800	9,600	60,200	60,400	5,900	1,600	1,400	500	64,000	5,800
Other	82,800	15,900	66,900	75,700	4,300	1,100	1,600	200	73,300	9,500

KEY: - = Fewer than 50 estimated

NOTE: Figures are rounded to nearest hundred. Details will not add to total because of rounding. Sum of primary/secondary work activity categories exceeds total because of multiple response. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Total includes "other" race/ethnicity not shown separately.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-21. Median number of direct and indirect subordinates for supervisory and managerial scientists and engineers employed in business or industry, by age, sex, race/ethnicity, and disability status: 1997

Sex, race/ethnicity, and disability status	Age				
	Total	Younger than 35	35–44	45–54	55 or older
Total	10	6	10	13	13
Sex					
Women	7	5	7	8	10
Men	10	6	10	14	13
Race/ethnicity					
White, non-Hispanic	10	6	10	14	14
Asian/Pacific Islander	5	5	6	5	8
Black, non-Hispanic	12	7	14	15	20
Hispanic	10	6	13	10	24
American Indian/Alaskan Native	5	3	5	10	10
Disability status					
Persons without disabilities	10	6	10	13	13
Persons with disabilities	11	6	8	13	14

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Total includes "other" race/ethnicity not shown separately.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

Appendix table 5-22. Scientists and engineers employed in government, by primary or secondary work activity—management, age, sex, race/ethnicity, and disability status: 1997

Primary or secondary work activity and age	Total	Sex		Race/ethnicity					Disability status	
		Women	Men	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	Persons without disabilities	Persons with disabilities
Total	439,100	99,400	339,800	353,300	42,000	24,500	16,500	1,800	410,800	28,300
Other	211,900	53,500	158,400	168,900	23,500	10,500	7,400	1,000	197,900	14,000
Management	227,200	45,900	181,300	184,500	18,500	14,000	9,100	800	212,900	14,300
Percent management	51.7	46.2	53.4	52.2	44.0	57.2	55.2	45.5	51.8	50.6
Less than 35	98,700	31,200	67,500	76,400	8,800	6,300	6,400	600	96,800	1,800
Other	53,900	18,600	35,400	41,900	5,600	3,000	3,000	500	53,000	900
Management	44,700	12,600	32,100	34,600	3,300	3,300	3,400	200	43,800	900
Percent management	45.3	40.5	47.6	45.2	36.8	52.1	53.5	28.3	45.3	48.8
35 to 44	142,000	37,600	104,400	110,300	14,000	10,100	6,100	800	137,000	5,000
Other	68,000	19,300	48,800	52,500	7,500	4,800	2,300	300	65,900	2,100
Management	74,000	18,300	55,700	57,700	6,500	5,300	3,800	500	71,100	2,900
Percent management	52.1	48.8	53.3	52.4	46.6	52.3	63.0	57.9	51.9	57.9
45 to 54	140,600	25,200	115,400	119,400	12,700	6,100	2,000	200	126,400	14,100
Other	62,200	12,300	49,900	52,300	6,700	2,000	1,200	100	55,400	6,900
Management	78,300	12,800	65,500	67,100	5,900	4,200	800	200	71,100	7,200
Percent management	55.7	51.0	56.7	56.2	46.9	67.9	40.0	72.5	56.2	51.2
55 or older	57,900	5,400	52,400	47,300	6,500	2,000	2,000	200	50,500	7,300
Other	27,700	3,300	24,300	22,200	3,700	700	900	100	23,600	4,000
Management	30,200	2,100	28,100	25,000	2,800	1,300	1,000	–	26,900	3,300
Percent management	52.2	38.6	53.6	53.0	43.0	65.[illegible]	52.3	15.0	53.2	44.9

KEY: – = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Percentages are calculated from unrounded numbers. Details will not add to total because of rounding. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Total includes "other" race/ethnicity not shown separately.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-23. Scientists and engineers employed in business or industry, by sex, race/ethnicity, and primary or secondary work activity: 1997

Primary or secondary work activity and sex	Total	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native
Total	2,343,600	1,955,600	247,400	68,700	65,500	6,100
Women	460,200	369,500	53,100	22,600	13,500	1,400
Men	1,883,400	1,586,100	194,300	46,100	52,000	4,700
Research and development						
Women	209,300	164,100	27,700	11,100	5,700	700
Men	1,089,900	913,300	123,000	23,600	27,700	2,200
Teaching						
Women	21,700	19,000	700	1,300	600	100
Men	40,300	34,500	2,500	1,800	1,500	100
Management and administration						
Women	200,100	165,600	18,100	9,000	6,800	600
Men	880,400	760,700	73,400	19,000	25,100	2,300
Computer applications						
Women	210,300	159,200	32,200	11,900	6,100	800
Men	777,300	633,900	97,400	23,700	20,300	2,100
Other						
Women	114,000	99,800	5,900	4,100	3,700	500
Men	329,500	288,000	22,900	7,900	9,300	1,400

KEY: - = Fewer than 50 estimated.

NOTE: Figures are rounded to nearest hundred. Details may not add to total because of rounding. Sum of primary/secondary work activity categories exceeds total because of multiple response. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Total includes "other" race/ethnicity not shown separately.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

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Appendix table 5-24. Median annual salary of full-time employed scientists and engineers, by highest degree, occupation, sex, and age: 1997

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Occupation and age	Sex	Highest degree: All degrees	Bachelor's	Master's	Doctorate
		In dollars			
Scientists and engineers total					
All ages	Women	47,000	45,000	48,000	50,000
	Men	58,000	55,000	60,000	65,000
20–29	Women	34,500	34,500	35,000	31,000
	Men	40,000	40,000	44,000	47,000
30–39	Women	48,000	48,800	49,700	42,000
	Men	55,000	54,000	58,700	54,900
40–49	Women	52,000	51,000	51,600	54,000
	Men	62,000	60,000	65,000	65,000
50 or older	Women	50,000	49,200	50,000	58,000
	Men	67,000	62,400	68,700	73,500
Computer and mathematical scientists					
20–29	Women	40,000	40,000	45,000	41,800
	Men	45,000	44,000	50,000	47,500
30–39	Women	51,000	50,000	54,000	56,000
	Men	57,000	55,000	60,000	64,000
40–49	Women	55,000	51,400	60,000	60,000
	Men	61,000	60,000	65,500	67,800
50 or older	Women	55,000	52,500	60,000	52,300
	Men	64,000	60,000	66,000	70,000
Life and related scientists					
20–29	Women	25,000	24,700	29,000	25,000
	Men	21,000	20,000	27,000	25,000
30–39	Women	35,000	32,000	35,200	35,000
	Men	37,000	37,000	32,000	40,000
40–49	Women	47,900	45,000	42,000	53,000
	Men	52,000	42,000	49,900	61,800
50 or older	Women	45,000	37,000	42,000	60,000
	Men	60,000	48,500	52,000	72,000

See explanatory information and SOURCE at end of table.

Appendix table 5-24. Median annual salary of full-time employed scientists and engineers, by highest degree, occupation, sex, and age: 1997

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Occupation and age	Sex	Highest degree			
		All degrees	Bachelor's	Master's	Doctorate
		In dollars			
Physical and related scientists					
20–29	Women	27,600	27,000	31,000	35,000
	Men	29,000	29,000	26,000	43,000
30–39	Women	42,000	38,000	45,000	47,000
	Men	45,000	42,000	46,000	51,000
40–49	Women	52,000	45,000	52,000	58,000
	Men	59,000	52,000	59,000	69,300
50 or older	Women	50,000	46,000	52,200	61,500
	Men	69,700	60,000	60,000	78,000
Social and related scientists					
20–29	Women	25,000	23,000	29,000	30,000
	Men	22,000	21,000	28,500	39,000
30–39	Women	36,000	29,000	35,000	40,000
	Men	42,000	33,000	41,000	46,000
40–49	Women	47,000	36,000	40,000	50,000
	Men	53,400	50,000	50,000	57,000
50 or older	Women	46,500	21,000	44,000	55,000
	Men	60,000	35,000	50,000	65,000
Engineers					
20–29	Women	41,600	41,000	43,000	40,000
	Men	41,000	40,000	45,000	60,000
30–39	Women	53,700	52,000	58,000	58,900
	Men	56,000	55,000	60,000	65,000
40–49	Women	57,700	55,400	64,000	68,000
	Men	65,000	62,400	68,000	74,000
50 or older	Women	55,000	55,000	45,000	75,800
	Men	70,000	65,000	73,000	82,000

KEY: - = Fewer than 20 individuals reporting salary.

NOTE: Total includes "professional and other degrees" not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Median salary rounded to nearest hundred dollars.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-25. Median annual salary of full-time employed scientists and engineers, by highest degree, occupation, race/ethnicity, and age: 1997

Page 1 of 2

Occupation and race/ethnicity	All degrees					Bachelor's				
	All ages	20-29	30-39	40-49	50 or older	All ages	20-29	30-39	40-49	50 or older
	In dollars									
Scientists and engineers total										
White, non-Hispanic	55,000	38,000	54,000	60,000	65,000	53,000	38,000	53,000	60,000	62,000
Asian/Pacific Islander	55,000	37,000	48,000	50,000	56,000	50,000	40,000	51,000	55,000	56,000
Black, non-Hispanic	48,000	45,000	54,000	60,000	65,000	47,500	37,000	48,000	51,100	55,000
Hispanic	50,000	37,000	50,400	55,000	62,000	49,500	35,000	50,000	55,000	60,000
American Indian/Alaskan Native	46,000	30,000	49,000	50,000	52,700	40,000	30,000	-	-	-
Computer/mathematical scientists										
White, non-Hispanic	56,900	42,000	55,000	60,000	62,000	55,000	42,000	54,000	59,000	60,000
Asian/Pacific Islander	56,000	48,000	59,200	60,000	61,000	50,000	46,000	53,000	55,000	52,000
Black, non-Hispanic	48,000	35,000	48,000	50,000	55,000	47,000	35,000	48,000	50,000	-
Hispanic	53,000	40,000	55,000	60,000	50,000	50,000	38,000	50,000	53,000	-
American Indian/Alaskan Native	53,000	-	-	-	-	-	-	-	-	-
Life and related scientists										
White, non-Hispanic	45,000	24,000	36,000	50,000	58,000	36,000	23,000	35,000	43,000	45,000
Asian/Pacific Islander	40,000	28,000	34,000	50,000	64,000	35,000	-	-	-	-
Black, non-Hispanic	46,000	27,000	36,000	47,000	60,000	46,000	-	-	-	-
Hispanic	40,000	19,000	35,000	48,000	58,500	33,000	19,000	-	-	-
American Indian/Alaskan Native	27,000	-	38,000	27,000	-	-	-	-	-	-
Physical and related scientists										
White, non-Hispanic	50,100	27,800	45,000	57,000	67,200	43,000	27,500	42,000	52,000	57,000
Asian/Pacific Islander	50,000	32,000	46,000	52,000	60,000	40,000	32,000	-	-	-
Black, non-Hispanic	42,000	31,500	41,000	50,100	52,000	41,000	31,000	-	-	-
Hispanic	41,300	27,000	35,800	55,000	59,000	34,000	-	-	-	-
American Indian/Alaskan Native	49,000	-	-	-	-	-	-	-	-	-
Social and related scientists										
White, non-Hispanic	45,000	24,000	38,000	50,000	54,000	25,000	22,500	29,000	50,000	-
Asian/Pacific Islander	44,000	29,500	45,000	48,000	64,000	25,000	-	-	-	-
Black, non-Hispanic	36,700	20,400	35,000	38,000	50,000	27,500	-	-	-	-
Hispanic	40,000	22,500	42,900	41,000	54,000	22,500	-	-	-	-
American Indian/Alaskan Native	30,000	-	-	-	40,000	-	-	-	-	-
Engineer										
White, non-Hispanic	60,000	41,000	56,000	65,000	70,000	56,700	40,000	55,000	62,600	65,600
Asian/Pacific Islander	58,000	45,000	55,000	63,000	66,000	51,000	44,000	50,000	60,000	60,000
Black, non-Hispanic	52,000	42,000	52,000	58,600	60,000	50,000	41,000	52,000	58,000	-
Hispanic	54,000	40,000	54,000	60,000	66,600	52,000	40,000	51,000	55,000	65,000
American Indian/Alaskan Native	50,000	-	54,000	53,000	-	50,000	-	-	-	-

See explanatory information and SOURCE at end of table.

Appendix table 5-25. Median annual salary of full-time employed scientists and engineers, by highest degree, occupation, race/ethnicity, and age: 1997

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Occupation and race/ethnicity	Master's					Doctorate				
	All ages	20-29	30-39	40-49	50 or older	All ages	20-29	30-39	40-49	50 or older
	In dollars									
Scientists and engineers total										
White, non-Hispanic	60,000	39,000	57,000	62,000	65,000	62,800	39,000	50,000	62,400	70,300
Asian/Pacific Islander	59,000	50,000	55,000	60,000	66,000	63,000	52,000	55,000	65,000	74,000
Black, non-Hispanic	48,000	36,000	48,100	48,500	57,000	55,000	-	47,000	54,000	58,000
Hispanic	55,000	41,000	55,000	56,000	63,000	56,000	-	46,000	54,600	70,000
American Indian/Alaskan Native	49,000	-	-	-	-	52,000	-	41,000	50,000	60,000
Computer/mathematical scientists										
White, non-Hispanic	61,000	46,000	60,000	65,000	66,000	65,000	42,000	60,000	65,000	68,500
Asian/Pacific Islander	60,000	53,000	60,000	63,000	66,000	65,000	50,000	64,000	70,000	70,000
Black, non-Hispanic	52,000	48,000	50,000	57,600	-	63,000	-	70,000	80,000	59,000
Hispanic	60,000	48,000	63,200	-	-	55,000	-	58,900	60,000	52,500
American Indian/Alaskan Native	-	-	-	-	-	55,000	-	-	-	-
Life and related scientists										
White, non-Hispanic	42,000	29,000	35,000	48,000	50,000	60,000	25,000	40,000	60,000	70,000
Asian/Pacific Islander	39,000	-	37,000	-	-	48,000	27,000	30,000	52,000	71,000
Black, non-Hispanic	39,000	-	-	-	-	55,000	-	39,700	50,000	65,000
Hispanic	33,000	-	-	-	-	56,000	-	40,000	56,000	78,000
American Indian/Alaskan Native	-	-	-	-	-	55,000	-	35,000	50,000	-
Physical and related scientists										
White, non-Hispanic	[illegible]	28,000	47,000	59,000	58,000	67,000	43,000	50,000	68,000	77,000
Asian/Pacific Islander	44,000	-	40,000	44,000	-	60,000	-	53,000	61,500	75,000
Black, non-Hispanic	41,000	-	-	-	-	60,000	-	47,000	60,000	78,000
Hispanic	47,500	-	-	-	-	60,000	-	46,000	60,000	75,000
American Indian/Alaskan Native	-	-	-	-	-	58,000	-	-	-	-
Social and related scientists										
White, non-Hispanic	42,000	28,500	37,000	46,000	47,000	55,000	31,000	42,000	55,000	62,000
Asian/Pacific Islander	38,000	-	-	-	-	50,000	-	48,000	48,000	68,000
Black, non-Hispanic	35,000	-	-	35,000	-	50,000	-	44,500	50,000	56,500
Hispanic	45,000	-	45,000	-	-	50,000	-	45,000	46,000	59,000
American Indian/Alaskan Native	-	-	-	-	-	49,000	-	-	-	50,000
Engineer										
White, non-Hispanic	65,000	45,000	60,000	69,000	74,000	75,000	52,000	65,000	75,000	83,000
Asian/Pacific Islander	60,000	45,000	55,000	63,000	70,000	70,000	55,000	64,200	72,000	81,000
Black, non-Hispanic	58,000	44,400	51,000	62,000	-	67,000	-	63,000	54,000	75,000
Hispanic	58,500	43,000	57,000	65,000	75,000	66,200	-	62,000	65,000	70,000
American Indian/Alaskan Native	-	-	-	-	-	88,000	-	-	-	-

KEY: - = Fewer than 20 individuals reporting salary.

NOTE: Total includes "professional and other degrees" and "other" race/ethnicity not shown separately. The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Median salary rounded to nearest hundred dollars.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System).

Appendix table 5-26. Median annual salary of full-time employed scientists and engineers, by occupation, age, sex, and race/ethnicity: 1997

Occupation and age	Women					Men				
	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native	White, non-Hispanic	Asian/ Pacific Islander	Black, non-Hispanic	Hispanic	American Indian/ Alaskan Native
	In dollars									
Scientists and engineers total										
20-29	33,000	40,000	35,000	34,000	-	40,000	45,000	38,000	38,000	30,000
30-39	48,000	52,800	45,000	46,000	33,000	55,000	55,000	50,000	53,000	53,000
40-49	52,000	50,000	47,000	49,500	42,000	62,000	62,000	52,000	60,000	53,000
50 or older	50,000	50,000	43,000	47,000	30,000	67,000	67,000	57,000	65,000	63,000
Computer/mathematical scientists										
20-29	40,000	46,000	35,000	38,000	-	44,500	49,000	38,000	41,000	-
30-39	51,000	55,000	46,000	50,400	-	57,000	60,000	50,000	55,000	-
40-49	55,000	56,000	45,000	50,000	-	62,000	61,000	53,000	65,000	-
50 or older	56,000	55,000	45,000	-	-	65,000	65,000	55,000	58,000	-
Life and related scientists										
20-29	25,700	22,000	-	-	-	21,000	30,000	-	-	-
30-39	35,000	35,000	36,000	34,500	-	37,500	31,000	39,700	42,000	38,000
40-49	48,900	42,300	47,000	44,000	-	52,000	57,000	48,000	56,000	-
50 or older	45,000	43,000	-	-	-	[illegible]	70,000	60,000	58,500	-
Physical and related scientists										
20-29	27,000	32,000	-	-	-	28,000	32,000	32,000	32,000	-
30-39	42,000	45,000	41,000	41,300	-	46,000	47,000	41,000	35,000	-
40-49	52,000	45,000	-	-	-	60,000	55,000	50,000	56,000	-
50 or older	51,000	46,000	-	-	-	70,000	70,000	52,400	72,400	-
Social and related scientists										
20-29	25,000	-	-	22,500	-	23,000	-	-	-	-
30-39	35,000	44,000	35,000	40,000	-	41,500	48,000	42,000	48,300	-
40-49	48,000	38,800	38,500	43,000	-	55,000	60,000	36,000	40,000	-
50 or older	46,500	50,000	45,000	54,000	-	60,000	65,000	50,000	56,000	-
Engineers										
20-29	41,000	43,000	40,900	40,000	-	41,000	45,000	42,000	40,000	-
30-39	53,000	56,700	53,000	54,000	-	57,000	54,000	52,000	53,000	56,000
40-49	58,000	55,000	-	-	-	65,000	64,000	58,000	60,000	55,000
50 or older	55,000	58,000	-	-	-	70,000	67,000	65,000	66,600	-

KEY: - = Fewer than 20 individuals reporting salary

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Median salary rounded to nearest hundred dollars.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System)

Appendix table 5-27. Median annual salary of full-time employed scientists and engineers, by highest degree, occupation, disability status, and age: 1997

Occupation and age	Bachelor's		Master's		Doctorate	
	Persons without disabilities	Persons with disabilities	Persons without disabilities	Persons with disabilities	Persons without disabilities	Persons with disabilities
	In dollars					
Scientists and engineers total						
20–29	38,000	34,200	41,000	44,000	40,000	-
30–39	52,000	50,000	56,000	50,000	50,000	54,000
40–49	59,000	58,000	62,000	57,000	62,000	62,000
50 or older	62,000	58,600	65,000	62,000	71,000	70,000
Computer/mathematical scientists						
20–29	42,000	-	50,000	-	46,000	-
30–39	54,000	50,500	60,000	58,000	62,000	55,000
40–49	57,800	60,000	64,500	61,000	66,000	60,000
50 or older	59,800	56,000	66,000	62,000	68,000	65,000
Life and related scientists						
20–29	23,000	-	29,000	-	25,000	-
30–39	35,000	-	35,000	-	38,000	37,500
40–49	43,000	-	48,000	-	60,000	57,000
50 or older	47,000	-	49,300	-	70,000	68,400
Physical and related scientists						
20–29	28,000	-	28,000	-	43,000	-
30–39	41 000	-	45,000	-	50,000	51,000
40–49	52,000	-	56,000	-	65,400	70,000
50 or older	56,500	-	60,000	55,000	77,000	73,500
Social and related scientists						
20–29	22,500	-	29,000	-	31,000	-
30–39	30,000	-	37,000	-	42,000	40,000
40–49	50,000	-	45,000	46,000	55,000	55,000
50 or older	-	-	47,000	50,000	61,500	61,000
Engineers						
20–29	40,000	42,800	45,000	-	59,000	-
30–39	55,000	52,000	60,000	49,700	65,000	64,000
40–49	62,000	60,000	68,000	64,000	73,000	80,000
50 or older	65,000	60,000	73,000	72,000	82,000	79,000

KEY: - = Fewer than 20 individuals reporting salary

NOTE: The term "scientists and engineers" includes all persons who have ever received a bachelor's degree or higher in a science or engineering field, plus persons holding a non-science and -engineering bachelor's or higher degree who were employed in a science or engineering occupation. Median salary rounded to nearest hundred dollars.

SOURCE: National Science Foundation/Division of Science Resources Studies, 1997 SESTAT (Scientists and Engineers Statistical Data System)

Women, Minorities, and Persons With Disabilities in Science and Engineering: 2000

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